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OF LYMPHOLOGY
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DI LINFANGIOLOGIA

THE EUROPEAN JOURNAL OF lymphology

and related problems

VOLUME 12 • No. 41 Sp. Co I • 2004

INDEXED IN EXCERPTA MEDICA

SUMMARY

THE EUROPEAN JOURNAL
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PRESENTATION OF THE SPECIAL ISSUE

The 30th Congress of a Scientific Society represents an important goal and, at the same moment, the proof of the solid bases on which was born and grow, thanks to the intuition of the founding members and thanks to the generational exchange in the continuity of scientific work produced, up to this moment, basing it on seriousness, originality, engage and constancy.

For these reasons, the special issue of the journal, that is the official organ of the European Group of Lymphology since 1990, according to the tradition, over then the program of the Congress and the Abstracts of the works presented inside it, includes also the entire list of the authors who have published their papers and the topics of them since his birth and all the subjects treated from the first number.

Skim through these pages can be put in evidence the originality and the variety of the themes.

It is natural to observe, above all, as the distribution of the lymphatic system in all the district of the organism and his relationship with the functions of the different organs and apparatus, involves all the disciplines of the medical science: from anatomy to physiology, from immunology to molecular biology, from genetic to pharmacology, from pediatrics to geriatrics, from dermatology to oncology, from internal medicine to surgery and, practically, all the other specialities of medicine.

Often, in the past, also recently, the review represented the natural resonance of the diagnostic, prognostic and therapeutic novelties in lymphology and, recently, has exceeded the frontiers of the old Europe, up to involve the interest of lots of worldwide studious. With these suppositions it's important to propose to grow up serving a fascinating and, in several aspects, in course of discovering and deepen science, thanks to the work of lots of subjects impassioned.

Not for last, must underline the great continuity between the first editorial published in 1990, as written by the first President of g.e.l., Prof. A. Pissas, and the last one, from the present President Prof. Bourgeois.

This historical link testify the strong actuality of Lymphology, for the develop of which, g.e.l. and its official review will always work.

SANDRO MICHELINI
Editor in chief of E.J.L.R.P.

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DE LYMPHOLOGIE

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FOUNDATION EDITORIAL

The European lymphology Group – Groupement Européen de Lymphologie – this year celebrates its second five-year period.

The large number of meetings organized in Belgium, Italy, France, Germany, England and Portugal testify to the considerable interest shown in lymphology by specialists from a wide range of backgrounds. Lymphology indeed embraces many fields of medicine: anatomy, physiology, pharmacology, internal medicine, surgery, angiology, oncology, radiology, nuclear medicine, physiotherapy and kinesitherapy. One of the topics to be discussed at the meeting of the GEL in Coimbra is "Lymphology and Orthopoedics", while another reflects the growing interest shown by specialists from various fields in the lymphatic system.

The European Journal of Lymphology and Related Problems thus plans to provide support for the works carried out by all specialists interfested in Lymphology. The magazine is also intended to serve as a meeting point for the various specialist subjects, whereby one group of researchers can learn about the contriubutions made by their counterparts in a different field. The magazine, it is hoped, will thus prove to be a source of mutual inspiration in basic and clinical lymphological research.

In addition to original works, review articles, etc., the journal's editorial policy will be to focus each issued or a number of issues on certain specific themes, with on in-depth look at the various aspects involved, thus providing readers with a summary at the latest developments or new areas of application and/or research. Articles on basic research and on clinical research as well as results of treatments will be published in an effort to bridge the gap between theory and everyday practice.

With Europe on the threshold of a new era, and the emergence of new borders, there could be no better time to announce the creation of the "European Journal of Lymphology and Related Problems". The Journal aims to reach people of all languages from all nations.

The success of this journal will depend on those people – present of future – who have taken or will take an interest in lymphology, a discipline which dates back centuries and but much of which remains to be discovered in the years that lie ahead. This challenge confronting us is our challenge and one which, we hope, will be taken up by everyone who will read the journal.

PROF. A. PISSAS

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LYMPHOLOGY IN EUROPE

Prof. Pierre BOURGEOIS, MD, PhD,
President of the European Lymphology Group
Service of Nuclear Medicine, Institut Jules Bordet, 1, rue Héger-Bordet,
B-1000, Brussels, Belgium - E-mail: pierre.bourgeois@bordet.be

Next October, the Groupement Européen de Lymphologie (GEL), the European Lymphology Group will hold its 30th Scientific Meeting in Brussels where it will also celebrate its 25th anniversary.

As the new President, this event inspires in me some thoughts on the past, the present and the future of our scientific society and on Lymphology in Europe.

The GEL was created at a time when no scientific societies specifically interested in Lymphology existed on our continent. The International Society of Lymphology (ISL) had certainly held its congresses for a long time and its journal *Lymphology* had already been the medium for its members' scientific works. Nevertheless, the biennial nature (once every two years) of the ISL's meetings, their scattering over the world and their sometimes 'mammoth' character did not satisfy the needs of certain members who wanted a greater development of the speciality specifically within the bounds of our continent. Created as a reaction to this situation, the GEL, open to all, doctors as well as paramedics, seems to have provided the answer to the expectations of its founders. The holding of its annual, sometimes twice-yearly, meetings successively in France, Belgium, Germany, Spain, Portugal, Czechoslovakia, Greece, Italy, England, Sweden ... has each time been the occasion for promoting the speciality and for developing it in a spirit of mutual respect and conviviality. They were the opportunity for scientific advances and progressive structuring in the speciality. The quality of the suggested works also brought about the founding and creation of a journal, our journal, the *European Journal of Lymphology and Related Problems*. At once, the *EJLRP* imposed itself as a publication that is more clinical than fundamental, and so complementary to Lymphology. For 10 years, the *European Journal of Lymphology* has been able to take pride in quality editions with varied articles. The new team who took over at the beginning of this year were to give it a new lease of life and a new dynamic.

A stroke of history or the consequence of GEL's action, Europe has seen over the last two decades the emergence of different societies either on a national level or one based on language. In England, the British Lymphology Interest Group, now British Lymphology Society. In France, l'Association de Lymphologie de Langue Française, now Société Française de Lymphologie. In Italy, la Societa Italiana de Lynfangiologia, the Latino-Mediterranean Chapter of Lymphology. In Spain, le Club de Lymphologie. In the Germanic countries, the Gesellschaft Deutshpraschiger Lymphologen,...etc. Expressions of increasing interest in Lymphology, the emergence and development of these different national societies, with their sometimes limited workforce and varied membership, bring out the best, the democratisation of the speciality, but also, and potentially, the worst, the scattering (in all senses of the term) of the most active and eminent members in the field, the effect of lowering at a local level of the global quality level, particularistic and/or national withdrawals. When faced with these risks, one of the answers, the answer that the GEL can bring about, is to assume its status as a European scientific society, federative with its national initiatives, open, bearing a consensual message and a dynamic which is rich with these differences. One of the next challenges for our society will be to carry out this transformation, this evolution.

In two decades, Lymphology has also passed on from the status of being 'small-scale' medicine, otherwise disparaged where only a few 'lymphomaniacs' or some 'physiotherapists' were active, to one of an interesting medical speciality, in full development, with a rigorous scientific approaches and practices. Lymphology has won acclaim with other groups of specialists and scientific societies interested in other aspects of the vascular system; Union International d'Angiology, Union International de Phlébologie, Microcirculation... Henceforth the scientific meetings of these societies frequently include sessions allocated to Lymphology. Some nevertheless touch on the risk of 'recovery' of our speciality.

For Lymphology now has to be considered as a medical and paramedical speciality in its own right. The global management of people with a lympho-vascular pathology now involves multiple knowledge and hence either specially trained lymphologists or structured multi-discipline teams with members who are quite *au fait* with these pathologies and who integrate all diagnostic or therapeutic aspects. From this point of view, we have to recognise that no structured training programme in Lymphology exists. Courses on the subject are organised here and there but we can only be struck by the disparity of trainings and the variability of quality levels. They are in fact either thorough and of good quality (they only deal with one limited domain of Lymphology such as surgery or physical treatment), or general and they are often incomplete and of a varying level. And there lies another of the challenges that our Group will have to face: the development and carrying out of a structured, complete program of courses taking into account all the knowledge necessary for the recognition and practice of the speciality.

Finally, in a Europe that is building and enlarging, common questions arise. The answers to these, particularly in the form of multi-center studies, should, indeed will have to be coordinated in order to be effective. This can be one of the roles of our society. Lymphology in Europe enjoys increasing interest and certain development. The European Lymphology Group will have been one of the players if not one of the initiators of this success. It remains to our Society now to ensure its European status, its federative function and what I feel to be its educational duty. This evolution will necessitate the participation of all its members. Together we can accept these challenges.

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A PROPOS DU PROCESSUS DE REVUE DES ARTICLES PARAISSANT DANS L'EJLRP...

ABOUT THE REVIEW PROCESS OF ARTICLES TO BE PUBLISHED IN THE EJLRP...

C. Campisi, Editor-in-Chief, RGH Baumeister, Associate Editor, A. Leduc, Associate Editor, M. Riquet, Associate Editor and P. Bourgeois, Executive Editor

En ce temps où la transparence devient une vertu qui ne touche plus seulement nos anciens collègues de l'Est (la «glasnost»), nous nous permettons de rappeler à nos lecteurs et à tous les auteurs potentiels l'ensemble du processus de revue des articles qui sont soumis pour publication dans notre journal.

Qui peut initier ce processus de revue?

Les articles peuvent être soumis (envoyés):
- soit à l'Editeur-en-chief
- soit à l'un des Editeurs Associés
- soit é l'Editeur Exécutif.

Chacun de ceux-ci peut initier le processus de revue d'un article. Dans le cas d'un article adressé aux premiers, il demande d'en envoyer un copie à l'Editeur-Exécutif.

Qui reviewe les articles en première lecture?

Tout article soumis pour publication dans l'EJLRP est soumis en première lecture:

- 1° à l'appréciation et à la critique d'au moins un et en général deux spécialistes du domaine abordé dans l'article.

Si un article touche plusieurs domaines, il est soumis à autant de reviewers qu'il y a de spécialités concernées. Ainsi, un article qui traite de résultants de kinésithérapie analysés au travers de techniques de médecine nucléaire sera soumis à des kinésithérapeutes et à des radioisotopistes.
Quand les avis remis par les reviewers apparaissent par trop discordants, l'Editeur-en-chief, l'Editeur associé ou l'Editeur exécutif qui a pris en charge le processus de revue peut demander l'avis d'autres spécialistes.
L'Editorial Board de l'EJLRP établit annuellement la liste des membres du comité scientifique. Chaque année, l'Editorial Board nomme parmi ceux-ci un ou plusieurs reviewers principaux chacun responsable d'un domaine particulier de la lymphologie. Ceux-ci de même que l'Editeur-en-chief, l'Editeur associé ou l'Editeur exécutif qui a pris en charge le processus de revue peuvent faire appel à des spécialistes extérieurs à la revue (non repris dand le comité scientifique) faisant autorité dans leur domaine.

- 2° à la lecture d'un reviewer «candide».

Ce lecteur – non concerné par les domaines particuliers soulevés dans l'article mais intéressé – émet ainsi un avis neutre et extérieur.
- des exposés magistraux sur invitation du Comité Scientifique
- des workshops dédiés à des thèmes précis.

Since transparency nowadays has become a virtue that does not regard only our old Colleagues from the East (the «glasnost»), we dare remember to our readers and to all potential Authors the review process of articles sent to publication in our journal.

Who can begin the review process?

The articles can be sent to:
- the Editor-in-Chief
- one of the Associate Editors
- the Executive Editor.

Each of them can begin the review process of the article.
In case of articles sent to the Editor-in-Chief or the Associate Editors, one copy will be sent to the Executive Editor.

Who review the articles at firm?

All the articles to be published in the EJLRP are addressed to:

- 1° The evaluation and criticism of at least one but commonly two specialists in the subject of the article.

If one article deals with several subjects, it will be submitted to different specialists in the various fields. So, an article that reports the results of physical therapy by means of techniques of nuclear medicine will be submitted to therapists and radioisotopists.
When reviewers' opinions appear too discordant, the Editor-in-Chief, Associate Editor or Executive Editor who started the review process can ask for other specialists' opinions.
The Editorial Board of the EJLRP yearly nominates the list of members of the scientific committee. Each year, the Editorial Board chooses among these people one or more representative reviewers, each one reponsible of a particular field of lymphology. These people like the Editor-in-Chief, the Associate Editor or the Executive Editor who started the review process can ask for the evaluation by other specialists outside the journal (not member of the scientific committee) owing to their particular experience in that specific field.

- 2° The reading by a neutral reviewer.

This reader – not specialist in the subject reported by the article but interested in it – gives his neutral and unconcerned opinion. The EJLRP has a big number of readers. This neutral reviewer evaluates if the article can be understood by most of the readers.
- Presentations as Posters
- Magistral Lectures under invitation by the Scientific Committee
- Workshops upon precise items.

De l'appel à communication?

L'appel à communications avec les thèmes proposés pour le congrès est lancé plusieurs mois avant celui-ci, en fait dans les 3 mois qui suivent la désignation d'un lieu de congrès par l'Assemblée Générale.
Cet appel à communications est notammeut publié dans l'EJLRP ainsi que dans toute autre revue ou sur tout autre support ayant reçu l'accord du Comité Scientifique.
Les communications proposées doivent être sur l'abstract form adopté par le GEL et l'EJLRP.

Des abstracts de ce congrès?

Les abstracts des communications acceptées lors des congrès du GEL sont publiés (en anglais seulement) dans le numéro de l'EJLRP qui précède, accompagne ou suit le congrès.

Du Congress President, du comité organisateur local et de leurs obligations.

L'organisateur retenu est nommé «Congress President».
Le comité organisateur est composé de personnalités locales choisies par le Congress President.
Le comité organisateur assure les pauses cafés, les repas sommaires du midi.
Il est d'usage d'offrir un diner un soir pour les membres du Conseil d'Administration.
La responsabilité financière du congrès incombe totalement au comité d'organisation.

A propos de la participation des membres du GEL?

Il est établi par l'usage que les membres du GEL, en règle de cotisation au GEL (tel qu'attesté par le trésorier du GEL) aient un accès gratuit aux congrès du GEL. Cet usage ne peut être modifié que par une décision de l'Assemblée Générale du GEL sur proposition de l'organisateur.
Une participation financière partielle à l'inscription au congrès ou à certaines activités proposées dans le cadre de celui-ci a été demandée par le passé aux membres du GEL et acceptée.

Quand défendre une proposition d'organisation de congrès?

Les candidatures sont présentées et défendues lors de l'Assemblée Générale du GEL.

Qui décide?

L'Assemblée Générale du GEL décide souverainement.

Call for abstracts?

Call for abstracts with the topics proposed for the Congress most be done several months before the Congress, practically within 3 months after the choice of the Congress site by the General Assembly.
Call for abstracts is published especially in EJLRP like in all other journals or means with the Scientific Committee agreement.
The papers must written inside the form used by GEL and EJLRP.

About abstracts of the Congress?

Abstracts of accepted papers are published (only in English) in the EJLRP issue that precedes, accompanies or follows the Congress.

About the Congress President, the local organizing committee and their duties.

The organizer is the «Congress President».
The organizing committee consists of local people chosen by the Congress President.
The organizing committee see to coffee breaks and lunches.
It is used to offer a dinner, one evening, to the members of the Executive Committee.
The financial responsability of the Congress is totally of the organizing committee.

About GEL members participation?

It is used that GEL members, who paid GEL annual fees regulary (as confirmed by GEL Treasurer) have a free of charge participation in GEL Congresses.
This custom can not be changed no way either then by a decision of GEL General Assembly after the organizer's proposal.
A partial financial participation in the Congress or in certain activities proposed in the ambit of the Congress was asked in the past to GEL members and accepted.

When support the proposal of organization of the Congress?

Candidatures are presented and supported during GEL General Assembly.

Who decides?

GEL General Assembly decides without appel.

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Gel newlines

A propos des congrès du GEL et de procédures à suivre pour les propositions de leur organisation

Guidelines about GEL Congresses and the procedures that their organizer's proposals should follow

Dr. A. Pissas, Président du GEL / President of GEL

Le texte qui suit reprend l'ensemble des principes et des usages dirigeant l'organisation des congrès du GEL.

A qui adresser ces candidatures?
Les candidatures doivent parvenir au Président du GEL.

Quand déposer ces candidatures?
Les candidatures sont déposées au moins 18 mois avant la date proposée pour l'organisation du congrès.

Qui peut déposer ces candidatures?
Le candidat organisateur dont être connu pour avoir participé à une des différentes sociétés savantes de lymphologie (GEL, ISL, GDL, LMCL, ...).

Où organiser un congrès du GEL?
Il doit s'agir d'une ville d'Europe, siège d'une université, d'un hôpital, d'une clinique ou d'un institut développant des activités de lymphologie clinique ou fondamentale.

Durée d'un congrès du GEL?
Un congrès du GEL dure en général 2 jours.

Dans quel langage?
L'anglais et le français sont les langues officielles des congrès du GEL.
D'autres langues peuvent être utilisées mais avec traduction simultanée.
Les abstracts des communications acceptées ne sont publiés dans l'EJLRP qu'en anglais.

A propos de l'organisation scientifique des congrès du GEL?
Le Comité Scientifique est composé entre autres des anciens Présidents du GEL, du Président d'honneur, des membres du bureau du GEL, du Président du Congrès et de toute personne élue par ceux-ci.
Le Comité Scientifique propose les thèmes abordés pendant le congrès.
La séléction des communications est le fait du Comité Scientifique.
Le Comité Scientifique élit en son sein un Président en charge de l'organisation du programme scientifique avec le Président du congrès.
Le programme scientifique des congrès du GEL inclut:
– des présentations orales de travaux originaux cliniques ou fondamentaux, de cas cliniques intéressants
– des présentations sous forme de poster.
L'EJLRP étant une revue touchant en définitive un public très large, ce reviewer «candide» veille également à ce que l'article proposé puisse être compris du plus grande nombre... du moins autant que faire se peut.
– 3° à l'appréciation de l'Editeur en chef et de l'Editeur (associé ou exécutif) qui a pris le processus en charge.

The following text deal with all the principles and rules that guide the organizers of GEL Congresses.

To whom adress these candidatures?
The candidatures must be sent to the President of GEL.

When to present candidatures?
The candidatures are presented at least 18 months before the date proposed for the organization of the Congress.

Who can present these candidatures?
The candidate organizer must be known for having participated in one of the different scientific Societies concerning Lymphology (GEL, ISL, GDL, LMCL, ...).

Where to organize GEL Congress?
The Congress must be organized in a European city, site of University, Hospital, Clinic or Institute dealing with clinical and basic lymphological activities.

Duration of GEL Congress?
GEL Congress lasts two days generally.

In which language?
English and French are the official languages of GEL Congresses.
Other languages can be used but with simultaneous translation.
Abstracts of accepted papers can be published in EJLRP only in English.

About scientific organization of GEL Congresses?
The scientific organization is realized by the Scientific Committee.
The Scientific Committee is formed among others by past and present Presidents of GEL, Honorary President, members of the Executive Committee of GEL, President of the Congress and by all people chosen for this task.
The Scientific Committee proposes general topics for the Congress.
The selection of papers is done by the Scientific Committee.
The Scientific Committee chooses among its members a President responsable of the organization of the scientific program together with the President of the Congress.
The scientific program of the GEL Congress includes:
– Oral presentations of original clinic and basic scientific works and of interesting clinical cases
– 3° The evaluation of the Editor-in-Chief, Associate Editor or Executive Editor who started the review process.

The reviewers' work
Each reviewer gives his-her justified opinion.

Le travail des reviewers?

Chaque reviewer analyse l'article proposé sur des bases des critères suivants:
- son intérêt dans leur domaine de spécialité propre
- son intérêt général dans le cadre de la revue (tenant compte de la connaissance qu'ils ont de ses lecteurs)
- qualité sur le fond
- qualité formelle.

Les reviewers relèvent les erreurs méthologiques, de résultats, d'interprétation («critical points»). Les auteurs doivent corriger ces différents points on y apporter des explications claires. Les corrections ou explications apportées doivent recevoir l'aval des reviewer concernés.

Les reviewers soulignent les points qui relèvent de la discussion et laissent aux auteurs la liberté de s'exprimer sur les sujets qui restent matière à débat.

Les reviewers sont invités à faire toute proposition utile qui augmente, améliore la lisibilité et la qualité de l'article pour l'ensemble des lecteurs: ajoute de tableaux, autre présentation des résultats, références, méthodologie plus détaillée,... Les auteurs peuvent ne pas suivre les propositions des reviewers mais les éditeurs responsables sont alor juges du niveau qualitatif de l'article représenté pour publication.

Chaque reviewer conclut par un des avis suivants:
- accepté tel quel;
- acceptable s'il est tenu compte des remarques émises;
- inacceptable (soit dans la forme proposée, soit sur le fond des résultats).

Ces avis sont colligés par l'Editeur-en-Chief ou l'Editeur Exécutif ou Associé et transmis (anonymisés) aux auteurs. Ils sont également communiqués aux reviewers.

De la resoumission des articles reviewés et corrigés?

Les articles corrigés sont à réadresser à l'Editeur-en-Chief ou à l'Editeur Exécutif ou Associé. Les auteurs peuvent accompagner leur article d'une lettre où ils argumentent à propos d'éléments qu'ils n'ont pas repris dans leur correction.

Lorsqu'un article a reçu de la part d'un reviewer ou de plusieurs reviewers:
- un avis negatif (inacceptable);
- des demandes majeures de modification;
- des critiques majeures («critical points»);

il est resoumis en deuxième lecture à ces mêmes reviewers.

De la décision finale de publication?

Les Editeurs suivent en général l'avis des reviewers.

Dans certains cas, ils peuvent néanmoins juger de la pertinence de certains objections aux remarques des reviewers et peuvent en tenir compte dans leur décision ultime de publier ou non.

Les analyses, avis et/ou remarques transmises par les reviewers tant en première qu'en deuxième lecture sont conservées par l'Editeur-en-Chief et par l'Editeur Exécutif de même que les articles dans leurs formes originales et corrigées.

Toute contestation d'une décision de publication contre l'avis d'un des reviewers:

1° peut donner lieu:
- à une lettre à l'Editeur concernant l'article incriminé. Les auteurs doivent alors dans leur réponse reprendre les éléments non repris dans leur article corrigé;
- à un éditorial dont la publication dans la forme est laissée à l'appréciation de l'Editeur-en-Chief;

2° peut être sonlevée lors d'une réunion de l'Editorial Board.

De la «durée» de ce processus?

Les reviewers se sont engagés, lors de leur acceptation de ce poste, à retourner les papiers reviewés endéans les 4 semaines suivant leur réception de l'article. Tenant compte des différents aléas, l'ensemble du processus de lecture d'un article prend de 4 à 5 mois et demi.

The reviewers analyse the article on the basis of the following criteria:
- it concerns a particular field of specialistic interest
- it regards a general subject in the ambit of the topics of the journal (considering the interest of its readers)
- quality of the content
- quality of the form.

The reviewers point out mistakes in methods, results, interpretation («critical points»). The Authors will correct the different points and report the requirest explanations. The corrections or explanations reported have to be approved by the same reviewers.

The reviewers underline the relevant points that come from the discussion and leave the Authors the freedom to report upon subjects that remain material of discussion.

The reviewers are invited to make any proposal to improve the quality of the article: add tables, other presentation of results, references, details about methods, etc... The Authors can disregard the reviewers' suggestions, otherwise it will be the responsible editor to evaluate the quality level of the article submitted for publication.

Each reviewer gives his opinion as follows:
- accepted exactly as it is
- accepted if the Authors consider the reviewers' remarks
- unacceptable (under form and content point of view).

These opinions are collected by the Editor-in-Chief, the Executive Editor or Associate Editor and sent (anonymously) to the Authors. They are also transmitted to the reviewers.

How to return articles reviewered and corrected?

The articles after their correction will be sent back to the Editor-in-Chief, Executive Editor or Associate Editors. The Authors can enclose a letter concerning aspects that are not dealt with in their corrections.

If the article had received from one reviewer or more:
- a negative opinion (unacceptable)
- request for major modifications
- «critical points»

the article will be submitted again for a second review to the same reviewers.

Final decision about publication fo the article?

The Editors generally follow reviewers' opinion.

Sometimes, they may disagree on reviewer's remarks and decide to publish or not the article.

Reviewers' remarks and opinions are kept by the Editor-in-Chief and the Executive Editor together with the original and corrected articles.

All objections upon the decision to publish the article against the opinion of the reviewers:

1° can give place to:
- a letter to the Editor regarding the article in question. The Authors will then take into considerations the points not evaluated in their corrected article;
- an editorial which will be evaluated by the Editor-in-Chief for publication;

2° can be pointed out at the meeting of the Editorial Board.

Time required for a review process?

The reviewers should return the reviewed article within 4 weeks from the time they receive the article. Considering the different steps, the review process will take altogether from 4 to 5 months and half.

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SUBJECTS' INDEX

Lymphoscintigraphy (also see Sentinel Lymph Node)

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XXX Congress of European Lymphology Group

Brussels, 16-17 october 2004

FINAL PROGRAM

SATURDAY 16TH OCTOBER

08:00-08:30	Registration
08:30	Welcome/Introduction P. Bourgeois, *GEL President* O. Leduc, J.-C. Wautrecht, *Congress Presidents*
08:45	**Session I - *Content of Lymphedema***
08:45	Questions/Answers (*) by Pissas A. (France) to introduce the lecture of Földi M. (Germany)
08:50	*Földi M. lecture* (L1): What in the composition of lymphedema could explain abnormalities observed in different imaging techniques?
09:10	Q/A by Campisi C. (Italy) to introduce the lecture of Brorson H. (Sweden)
09:15	*Brorson H. lecture* (L2): Liposuction in lymphedema treatment: what is removed?
09:40	Q/A and discussion by Pissas A. and Campisi C. to finish the session
09:45	**Coffee break**
10:15	**Session II - *Imaging of lymphatics and peripheral lymphedema***
10:15-12:05	***1st part:* Ultrasounds and NMR**
10:15	Q/A by Fumière E. (Belgium) to introduce the lecture of Matter D. (France)
10:20	*Matter D. lecture* (L3): How to perform ultrasonographic visualisation of lymphatic vessels?
10:35	Q/A by Fumière E. to introduce the lecture of Michelini S. (Italy)
10:40	*Michelini S. lecture* (L4): Classification of lymphedema by ultrasonography: is there a real one? What do we classify?
10:55-11:55	*Free communications:*
10:55	"Computerized Tomography in Lymphedema: diagnostic and therapeutical implications". *Michelini S., Failla A., Moneta G., Paroni Sterbini G.L., Russo F. - Italy* (C1)
11:10	"Usefulness of proton MR spectroscopy in lymphedema". *Fumière E., Leduc O., Montenot J., Demeure R. - Belgium* (C2)
11:25	"Normal head and neck lymph nodes topography based on the dataset of the visible human". *Kiricuta C., Qatarneh S., Brahme A. - Germany and Sweden* (C3)
11:40	"Growing discrepancy of angiodysplasic lower limb in pediatrics. Radiological measurement". *Papendieck C.M., Barbosa M.L., Pozo P. - Argentina* (C4)
11:55	Q/A and discussion by Fumière E. to finish the session
12:05-13:30	**Lunch**
13:30-15:05	***2nd part:* Nuclear medicine techniques**
13:30	Q/A by Bourgeois P. (Belgium) to introduce the lecture of Behar A. (France)
13:35	*Behar A. lecture* (L5): Landis test in the 21st century: which place?
13:50	Q/A by Pecking A. (France) to introduce the lecture of Bourgeois P.
13:55	*Bourgeois P. lecture* (L6): How and when to perform a lymphoscintigraphy?

(*) Q/A refers to Questions/Answers by means of the voting system.

14:10-15:55	*Free communications:*
14:10	"Rosuvastatin effect on lymphatic pumping in diabetic rats. What is the role of endothelial dysfunction?" *Cohen–Boulakia F., Behar A., Tahrzaoui K., Lestrade R., Albertini J.R., Valensi P. - France* (C5)
14:25	"Lymphatic dysplasias of the newborn: role of lymphoscintigraphy". *Bellini C., Bonioli E., Boccardo F., Taddei G., Serra G., Campisi C. - Italy* (C6)
14:40	"Lymphedema following the surgical treatment of breast cancer: evaluation of prophylactic measurements". *Boccardo F., Zilli A., da Rin E., Eretta C., Campisi C. - Italy* (C7)
14:55	Q/A and discussion by Bourgeois P. to finish the session
15:05	**Coffee break**
15:30	**Session III - *Lymphovenous diseases and dermatology***
15:30-16:35	***I^st^ part:* Skin changes**
15:30	Q/A by de la Brassine M. (Belgium) to introduce the session and the lecture of Flour M. (Belgium)
15:35	*Flour M. lecture* (L7): Are there specific skin changes due to lymphatic microangiopathy linked to severe chronic venous incompetence?
15:50	Q/A by Flour to introduce the lecture of de la Brassine M.
15:55	*de la Brassine M. lecture* (L8): How to treat skin changes due to lympho-venous incompetence?
16:10-16:25	*Free communications:*
16:10	"Histochemical demonstration of regenerating lymphatic vessels in the wound healing". *Kato S., Ji R.-C. - Japan* (C8)
16:25	Q/A and discussion by Flour M. and de la Brassine M. to finish the session
16:35	**End of the day program GENERAL ASSEMBLY OF THE GEL**
18:00	**Transfer bus to Novotel**
20:00	**Reception - Gala Dinner, Auto-World**

SUNDAY 17TH OCTOBER

08:30-09:30	***2^nd^ part:* Infectious diseases Lymphedema and infectious disease: what is clear?**
08:30	Q/A by de la Brassine M. to introduce the lecture of Olszewski W. (Poland)
08:35	*Olszewski W. lecture* (L9): Bacterial infection
08:55	Q/A by Flour M. to introduce the lecture of Ohkuma M. (Japan)
09:00	*Ohkuma M. lecture* (L10): Parasitic infection
09:20	Q/A and discussion by Flour M. and de la Brassine M. to finish the session
09:30	**Coffee break and poster session**
10:30	***Session IV* - Peripheral lymphedema: from diagnosis to treatment**
10:30	Q/A by Wautrecht J.-C. (Belgium) to introduce the session
10:35	*Campisi C. lecture* (L11): Lymphatic microsurgery: from diagnosis to treatment
10:50-11:20	*Free communications:*
10:50	"An early (latent) stage of secondary arm lymphedema and its successful treatment with exogenous proteinases". *Wald M., Houdová H., Křížová H., Adámec J., Zemanová R. - Czech Republic* (C9)
11:05	"Five years follow up in primary and secondary lymphedema: our experience". *Michelini S., Failla A., Moneta G. - Italy* (C10)
11:20	Q/A by Leduc O. (Belgium)
11:25-11:50	*Clinical cases* Wautrecht J.-C., Leduc O.
11:50	Q/A and discussion by Leduc O. and Wautrecht J.-C.
11:55	**Award ceremony for the best poster presentation** *Honour Presidents:* Beaujean M. (Belgium), Hidden G. (France), Leduc A. (Belgium)
12:00	**Final conclusions** *GEL President,* Bourgeois P. *Congress Presidents,* Wautrecht J.-C. and Leduc O.

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POSTERS SESSION

SUNDAY 17TH: 09.30-10.30

	First author	Country	Title
P1	Beaujean M.	Belgium	Iatrogenic surgical lesions of lymphatic structures of the lower limbs
P2	Beaujean M.	Belgium	Injuries by percutaneous high pressure injection
P3	Benda K.	Czech Republic	Modified combined decongestive physiotherapy in head and neck lymphedema management
P4	Eliska O.	Czech Republic	Negative pressure, lymphatics and blood vessels
P5	Forner-Cordero I.	Spain	Facial lymphedema in Melkersson – Rosenthal syndrome
P6	Hamadé A.	France	Oedema of the hands in intravenous cocaine addict patients
P7	Keeley V.	United Kingdom	A qualitative investigation of the lived experience of lymphedema
P8	Keeley V.	United Kingdom	The development of a condition-specific quality of life measure for lymphedema (LYMQOL)
P9	Kiricuta I.C.	Germany	Evaluation of normal mesorectal lymph nodes
P10	Kiricuta I.C.	Germany	Topography of the lymphatics of the breast based on the visible human
P11	Michelini S.	Italy	Lymphoscintigraphy and lymphedema: from prevention to prognosis
P12	Michelini S.	Italy	Combined physical treatment in patients with lymphedema: which and how?
P13	Okada E.	Japan	Lymphangiogenesis and hemangiogenesis in lesions of myocardial infarction
P14	Rada I.O.	Romania	Phlebedema vs lymphedema – Material, method (Part I)
P15	Rada I.O.	Romania	Phlebedema vs lymphedema – Results (Part II)
P16	Rada I.O.	Romania	The compulsory vascular lymphatic load vs the optional load – debate, conclusions (part III)
P17	Tamai Y.	Japan	Transcutaneous oxygen partial pressure in unilateral lymphedema
P18	Theys S.	Belgium	A 30 or 90 mmHg – manual or pneumatic – drainage in primary limb lymphoedema: A comparative plethysmographic study
P19	Thibaut G.	France	The duke health profile: a scale to measure the quality of life
P20	Venken R.	Belgium	Early results after lymphatic-venous derivative microsurgery for upper limb lymphedema: my personal experience
P21	Wald M.	Czech Republic	Lymphatic vessel "overload" on the arm after axilla dissection
P22	Wald M.	Czech Republic	Dissection of sentinel node in breast cancer – condicio sine qua non?

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L3

HOW TO PERFORM ULTRASONOGRAPHIC VISUALISATION OF LYMPHATIC VESSELS?

D. MATTER

High frequency ultrasonography at 12 MHz was used to depict the normal and abnormal lymphatic vessels of the limbs using an adapted technique.
In normal subjects, the lymphatic network could easily be seen as echogenic lines arranged in a network covering the entire hypodermis, between the adipose lobules; the lymphatic collectors of the epifascial area are longitudinal structures with one or two distinct walls limiting the lumen, crossing or surrounding the lymph nodes at the root of the limb.
In case of lymphedema, US can demonstrate the presence or absence of lymphatic vessels, their dilatation in a characteristic honeycomb pattern and their possible compressibility, and look for thickening of the dermis or hyperechogenicity of the fat lobules in the hypodermis.

L4

CLASSIFICATION OF LYMPHEDEMA BY ULTRASONOGRAPHY: IS THERE A REAL ONE? WHAT DO WE CLASSIFY?

S. MICHELINI

Hospital S. G. Battista – Rome – Italy

The diagnosis of lymphedema is clinic. High resolution echography give us some informations about the localization of oedema, its extension, the prevailing presence of oedema in supra or subfascial tissues and the liquid and or fibrotic component.
The parameters to consider during the exam are the supra and subfascial tissular thickness, the echogenicity and the tissular compressibility.
With the echographic exam we can observe:

- a prevailing ipoechogenicity corresponding to the fluid component (frame A);
- a simultaneously presence of ipoechogenical and iperechogenical zones of the tissues (frame B);
- a prevailing iperechogenicity of the tissues corresponding to the fibrosis (frame C).

During the examination we can observe a prevailing and homogeneous cutaneous fascial ipoechogenicity, corresponding to water spraiding inside the tissues, sometimes with an interposition of lymphatic lakes and/or canals (frame A). In these cases a compressibility of tissues determines a substantial reduction of suprafascial thickness tissue.
In other cases we observe a disomogeneous ipoechogenicity of the suprafascial thickness caused by presence of water with several iperechogenic stripes or zones due to fibrosis of tissue. It's possible in these cases to observe lymphatic lakes and/or canals. The tissutal compressibility is possible but the decrease of suprafascial thickness is less (frame B).
In other cases we observe more diffuse iperechogenic suprafascial stripes and/or zones caused by tissutal fibrosis. In these cases there is a poor ipoechogenic component. It's possible to observe also some lymphatic lakes or canals. Very poor, or absent, it is, in these cases, the tissutal compressibility (frame C).
Normal subjects present in both of the two limbs a coinciding echogenicity and thickness of supra and subfascial tissue. At various level of suprafascial thickness we can see an interposition of iperechogenic stripes corresponding to the fat tissue.
In all patients with echographic frame A we observed a remarkable decrease, after treatment, of suprafascial tissutal thickness.
In the patients with echographic frame B we observed, after treatment, a decrease of ipoechogenic component (corresponding to the fluid component of oedema); In all cases the echographic frame was unvaried after treatment.
In the patients with echographic frame C was observed a very low decrease of ipoechogenic component of suprafascial thickness.
Under the clinical point of view the reversibility is completely possible for the frame A, partially for the frame B and very low for the echographic frame C.
So, the high resolution echography confirms us the diagnosis of lymphedema and gives us informations about the monitoring of the results of the treatment and also about the prognosis.

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C1

COMPUTERIZED TOMOGRAPHY IN LYMPHEDEMA: DIAGNOSTIC AND THERAPEUTICAL IMPLICATIONS

MICHELINI S., FAILLA A., MONETA G., PARONI STERBINI G.L., RUSSO F.

S. Giovanni Battista Hospital – Rome – Italy

We have studied 115 patients suffering from primary or secondary lymphedema of the limbs (77 unilateral and 38 bilateral).
All the subjects underwent C.T. scan with an examination of 5 axial cuts each limb: 1 at root level, 1 at the third middle of the intermediary segment of the limb (thigh or arm), 1 at the third proximal (leg or forearm) of the distal segment, 1 at the third distal of the distal segment and 1 in the intermediary zone of the last segment of the limb (feet or hand).
In case of "suspended lymphedema" the cut were addressed in the interested area only.
The data of the patients have been compared with 10 healthy subjects.
The following data were analyzed (in comparison in the two limbs): epidermal thickness, suprafascial thickness, subfascial thickness, muscular trophysm, prevailing suprafascial content in fat tissue (negative values , -70 -80 of the signal), in water component (+ - = values of signal) or in fibro-tissutal component (positive value of signal + 60 +70).
We have observed: 28 patients with a prevalent fat suprafascial component (24,2% of patients – A); 69 with a prevalent water component (60% - B) and 18 patients with a prevalent fibrosclerotic component (15,8% - C).
A local muscular hypotrophy or diffuse in the affected limb respect to the contra-lateral or prevailing among two suffering limbs, were observed in 71 patients.
The exam, over then a diagnostic confirm, allows to address isotonic gymnastic on hypotrophyc muscles; but it is above all important to define the whole therapeutic address basing on the prevalent suprafascial tissutal composition.
In A group is suggested a selective liposuction; in the B group must be performed physical, pharmacologic and microsurgical treatment; in the C group physical treatment with a greater utilization of elastocompression and ultrasounds, is the better choice.

C2

USEFULNESS OF PROTON MR SPECTROSCOPY IN LYMPHOEDEMA

FUMIERE E. (1), LEDUC O. (2), MONTENOT J. (2), DEMEURE R. (3)

(1) CHU Charleroi, Department of radiolgy (Charleroi, Belgium)
(2) P-H. Spaak College (Brussels, Belgium)
(3) Siemens Medical Division (Brussels, Belgium)

Purpose: To determine the nature of intralobular US hyperechogenicity in chronic lymphoedema with high resolution MR imaging and proton MR spectroscopy.

Material and methods: We performed bilateral ultrasound imaging with 13,5 MHz probe, high resolution TSE T1 and TSE T2 with and without Fat-Sat MR imaging and MR Single Voxel Spectroscopy (10*10*10 mm) in 10 patients with secondary chronic lymphoedema of upper or lower extremity. We determined for each case Spectroscopy Water/Fat ratio in the pathologic extremity and the contralateral side. 3 patients underwent Chemical Shift Imaging Spectroscopy with 5*5*6 mm voxel size.

Results: All patients had intralobular hyperechogenicity and persitent intralobular fat signal in high resolution MR imaging. Water/Fat ratio of MR spectroscopy were significantly higher in cases of lymphoedema (mean +/- SD= 0,49 +/- 0,34) than in contralateral extremities (mean +/- SD= 0,086 +/- 0,15) (P= 0,0015). CSI spectroscopy suggest presence of intralobular water in case of hyperechogenic lobule.

Conclusion: Ultrasound and MR Spectroscopy are higher sensitive than conventional MR imaging to depict intralobular changes in lymphodema. MR spectroscopy suggests that intralobular US hyperechogenicity in lymphoedema reflects increased intralobular water.

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C3

NORMAL HEAD AND NECK LYMPH NODES TOPOGRAPHY BASED ON THE DATASET OF THE VISIBLE HUMAN

I.C. KIRICUTA (1), S.M. QATARNEH (2), A. BRAHME (2)

(1) Institute of Radiation Oncology, St. Vincenz-Hospital, Limburg, Germany

(2) Department of Medical Radiation Physics, Karolinska Institute, Stockholm, Sweden

Purpose: To present the number, location and size of the normal sized lymph nodes of the head and neck region of the investigated "Visible Human" female and male dataset.

Methods and Materials: The data presented here were obtained by detailed investigation of the "Visible Human" female and male. The optical anatomic axial microtome slices of the head and neck region were recorded every 1 mm interval. The resolution of the images investigated was 28 pixel per cm. Special attention was devoted to the topography as well as the number and size of lymph nodes.

Results: New data on the location of normal sized lymph nodes in anatomical optical microtome sections were acquired. "Invisible" nodes were identified, i.e., normal size head and neck lymph nodes with diameters of less than 3 mm diameter which remain "invisible" for imaging methods such as CT or MRI. The identified nodes were classified conform to the CT-based nodal classification of Som et al. (1999) and the recently proposed consensus guidelines of Gregoire et al. (2003).

Conclusion: New data on the normal sized head and neck lymph nodes based on the dataset of the Visible Human were acquired. A 3D representation of the head and neck lymph nodes was performed.

Neck lymphatics, nodal level, 3D representation, nodal classification, visible human dataset.

C4

GROWING DISCREPANCY OF ANGIODYSPLASIC LOWER LIMBS IN PEDIATRICS. RADIOLOGICAL MEASUREMENT

C.M. PAPENDIECK, M.L. BARBOSA, P. POZO

IADT - ISNA - Buenos Aires - Argentina

The length and volume measurement of the angiodysplasic lower limbs in pediatrics, depends on different variabies, sometimes, difficult to evaluate in a constant, objective way. It is important to consider the age, weigth, growth, type of malformation, uni or bilateral compromise and non vascular syndromes.
The present study wants to demostrate an objetive and constant way of measurement, and even so, to evaluate this information in relation to the diagnosis, before and after the treatment. The purpose is a radiological measurement in an estrict front X-Ray of corporal segments, every 6 months.
The measurement is performed among constant bony points, and the difference between borh limbs, plus 50% of the discrepancy, gives us the lenth asymmetry.
To determine the volume measurement, over the same X-Ray, mentioned before, we trace a perpendicular line in the middle point of the length, and exactly at that point we measure limb diameter, bony diameter, and subcutaneus thickness.
The 1° X-Ray is for diagnosis and to establish the discrepancy. In intervalls of 6 months or its multiples, we repeat the images in similar conditions.
132 measurements in 70 patients, with an average age of 5 years (1 month - 20 years) was our data basis, in different syndromes: Primary Lymphedema, Adiposc tissue tumors like Lipoblastoma, Klippel Trenaunay, Weber and Servelle Syndrome, FP Weber S., Lymphangiomatosis, Hemangiomatosis, Phleboangiomatosis, other Hamartoma or Phacomatosis, and non vascular Hemicorporal Hypetrophies, were included.
This non operater dependant, easy images, are an objective and sure way to evaluate the children for diagnosis and the response of the treatment or spontaneous evolution.

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C5

ROSUVASTATIN EFFECT ON LYMPHATIC PUMPING IN DIABETIC RATS. WHAT IS THE ROLE OF LYMPHATIC ENDOTHELIAL DYSFUNCTION?

F. COHEN-BOULAKIA, A. BEHAR, K. TAHRZAOUI, R. LESTRADE, JR ALBERTINI, P. VALENSI

Biophysic lab. Univ. Paris VI, Nutrition lab. Univ. Paris XIII

Diabetes induced various micro vascular disorders including an increase in capillary permeability and an impairment of lymphatic function, with a specific impact on lymphatic pumping.
The aim of this study was to test the effect of rosuvastatin on microcirculatory function in diabetic rats. Forty-five male Wistar rats with streptozotocin-induced diabetes were randomized at the time of weaning in 3 groups: rosuvastatin (R), mevalonate and rosuvastatin (MR), and untreated group (U), and were compared with a control group of 15 rats. At the age of 3 months (T0), R rats started rosuvastatin treatment (20 mg/kg/day) and MR rats a combined treatment by rosuvastatin and mevalonate (20 mg/kg/day for both). The capillary filtration of albumin (CFA) was investigated by an isotopic test with technetium-labelled albumin. Radioactivity was measured externally on a hindquarter, before, during and after venous compression. Interstitial albumin retention (AR) was determined and lymphatic function was evaluated by the fast Fourier transform of the radioactivity disappearance curve (ratio of the amplitudes of the low and high frequency peaks: LF/HF).This ratio is correlated with colloïd half life in lympho scintigraphy. The test was performed at T0, T1 (age: 5 months) and T2 (8 months).

Results: At T0, AR was significantly higher in groups U, R and MR than in control rats ($p < 0.001$ for all). In group U, AR increased from 7.8% ± 2.1 at T0 to 13.6% ± 1.3 at T1 and 20.1% ± 1.7 at T2 ($p < 0.001$). In group R, AR decreased from 5.8% ± 1.6 to 2.0% ± 0.7 and 2.3% ± 1.1 ($p = 0,01$). In group MR, AR decreased from 5.5% ± 1.4 at T0 to 1.4% ± 0.6 at T2 ($p < 0.001$). LF/HF increased significantly in group U from T0 (0.15% ± 0.04) to T2 (0.70% ± 0.15) ($p = 0.003$). In groups R and MR, LF/HF did not change significantly from T0 to T2 and did not differ from control rats (0.13% ± 0.03 at T2I. Inflammatory factors like: creatinin phospho kinase (CPK) and C reactive protein (CRP) was performed, and this 2 factors are significantly lower in group R versus group U.

In conclusion:

- Beyond the beneficial effect on blood micro circulation. Rosuvastatin prevent the impairment of lymphatic function in an independent way of its lipid lowering effects.
- Rosuvastatin inhibit leukocyte-endothelial cell interactions and protect against inflammatory process could be for all the micro vascular endothelium.
- Rosuvastatin is effective against oxydative stress with correction of defective NO in diabetic rats.

C6

LYMPHATIC DISPLASYAS OF THE NEWBORN: ROLE OF LYMPHO-SCINTIGRAPHY

CARLO BELLINI, MD, PHD, EUGENIO BONIOLI, MD, FRANCESCO BOCCARDO*, MD, PHD, GIOCONDA TADDEI**, MD, GIOVANNI SERRA, MD, CORRADINO CAMPISI*, MD

Department of Pediatrics (DIPE), Service of Neonatal Pathology, G. Gaslini Institute

* *Department of Surgery (DICMI), Section of Lymphatic Surgery and Microsurgery, S. Martino Hospital*

** *Department of Medicine (DIMI), Service of Nuclear Medicine, S. Martino Hospital, University of Genoa, Italy*

On the basis of the collaboration of Neonatal Intensive Care Unit of the University of Genoa, Gaslini Institute, with the Nuclear Medicine Service of the San Martino Hospital of Genoa, and with the Section of Lymphatic Surgery and Microsurgery of the University of Genoa (period from Gennuary 1998 to December 2002), newborns affected by primary lymphedema of various etiology who presented at birth at least one sign among the following, were investigated: hydrops fetalis, hydrothorax, hydropericardium, ascites, lymphedema of the limbs, lymphedema of genitalia.
Chylothorax, chylopericardium, and chylous ascites, as well as generalized lymphatic dysplasia may occur as separated or associated entities. More generally, all causes that may generate non-immune fetal hydrops, may also be the cause of lymphedema of the newborn or cavity effusions evidentiated at birth. Diagnosis and management of a newborn affected by primary lymphedema is a challenge and early diagnosis during the neonatal age is very important to prevent the rapid evolution of lymphedema. Lymphoscintigraphy offers objective evidence to distinguish lymphatic pathology from non lymphatic causes of lymphedema.

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C7

LYMPHEDEMA FOLLOWING THE SURGICAL TREATMENT OF BREAST CANCER: EVALUATION OF PROPHYLACTIC MEASUREMENTS

FRANCESCO BOCCARDO, ANGELO ZILLI, ELISA DA RIN, COSTANTINO ERETTA, CORRADINO CAMPISI

Department of Surgery (DICMI) - Section of Lymphatic Surgery and Microsurgery, S. Martino Hospital - University of Genoa, Italy - francesco.boccardo@unige.it

Purpose: Lymphedema is a common complication of axillary dissection, affecting approximately 25% of patients. As lack of awareness of the problem, and of resources to deal with it, remains a major limiting factor in management, emphasis should be placed on prevention.

Methods: Fifty-five women, who had breast-conservation surgery with axillary dissection, were randomly assigned to either the preventive protocol (PG) or control group (CG) and assessments were made preoperatively, at 1, 3, 6, 12 and 24 months postoperatively. Arm volume (VOL) was used as measurement for the detection of arm lymphedema. The preventive protocol for the PG women included preoperative upper limb lymphoscintigraphy (LS), principles for lymphedema risk minimisation and early management of this condition when it was identified.

Results: Assessments at 2 years postoperatively were completed for 89% of the 55 women who were randomly assigned to either PG or CG. Of the 49 women with unilateral breast cancer surgery who were measured at 24 mo., 14 (21%) were identified with secondary lymphedema using the VOL; the PG women had an incidence of 8% and the CG women had an incidence of 36%.

Conclusions: These prophylactic strategies appear to reduce the development of secondary lymphedema and alter its progression in comparison to the CG women.

C8

HISTOCHEMICAL DEMONSTRATION OF REGENERATING LYMPHATIC VESSELS IN THE WOUND HEALING

SEIJI KATO and RUI-CHENG JI

Division of Morphological Analysis, Department of Anatomy, Biology and Medicine, Faculty of Medicine, Oita University 879-5593, Japan

Purpose: Wound healing skins of the mouse have herein investigated to address the 5'-nucleotidase (5'-Nase) and VEGFR-3 histochemical techniques to unravel the morphological variation of regenerating lymphatic vessels and to address the question regarding to contribution of lymphatic proliferation to tissue repair processes.

Methods: 5'-Nase and ALPase activity for demonstrating lymphatics and blood vessels, respectively, in the regenerating tissues was examined by light and electron microscopy. For immuno-histochemistry, the specific lymphatic endothelial markers,VEGF-C and its receptor VEGFR-3 in addition to von Willebrand factor for blood vessels were examined. The antigen site of VEGFR-3 was also examined in ultrathin sections by a postembedding immunogold technique.

Results: In the wound healing processes, the present study showed that the regenerating signal of VEGFR-3, the receptor of VEGF-C, on the lymphatic endothelial cells appeared as early as three days after injury in the subcutaneous tissue,much earlier than in the dermis. Many accumulated vasculatures that have 5'-Nase and PECAM-1 reactivity are located in the wound age. In the subcutaneous tissues of a 7-day wound, 5'-Nase activity is obviously represented on a large collecting lymphatic vessels that are positive for ALPase staining.In constrast to intense PECAM-1 staining for the blood vessels, the immunoreactivity on the lymphatic vessel is extremely weak.

Conclusion: The present findings indicate that VEGF-C-induced lymph-angiogenesis occurs from the subcutaneous tissue to dermis along the wound healing edge, especially in the dermal-subcutaneous transitional area, favorable for sprouting and growth of regenerating lymphatic vessels.

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L11

LYMPHATIC MICROSURGERY: FROM DIAGNOSIS TO TREATMENT

CORRADINO CAMPISI

Department of Surgery (DICMI) - Section of Lymphatic Surgery and Microsurgery, S. Martino Hospital - University of Genoa, Italy - campisi@unige.it

Purpose: We analyzed clinicopathologic and imaging features of chronic peripheral lymphedemas to identify imaging findings indicative of the exact etiopathogenesis of lymphedema and to establish the optimal treatment strategy.

Methods: In the last 25 years, over 1000 patients with peripheral lymphedema have been treated with microsurgical lymphatic-venous anastomoses. Of these, 66% were available for long-term follow-up study. Objective assessment was undertaken by water volumetry and lymphoscintigraphy.

Results: Objectively, volume changes showed a significant improvement in 83% of patients, with an average reduction of 67% of the excess volume. Of those patients followed-up, 85% have been able to discontinue the use of conservative measures, with an average follow-up of more than 7 years and average reduction in excess volume of 69%. There was a 87% reduction in the incidence of cellulitis after microsurgery.

Conclusions: Microsurgical operations have a place in the treatment of peripheral lymphedema and should be the therapy of choice in patients who are not sufficiently responsive to nonsurgical treatment. Improved results can be expected with operations performed earlier at the very first stages of lymphedema.

C9

AN EARLY (LATENT) STAGE OF SECONDARY ARM LYMPHEDEMA AND ITS SUCCSESSFUL TREATMENT WITH EXOGENOUS PROTEINASES

(1) MARTIN WALD, (2) HANA HOUDOVÁ, (3) HANA KŘÍŽOVÁ, (1) JAN ADÁMEK, (1) RENATA ZEMANOVÁ

(1) Department of Surgery, 2nd Medical School, Charles University, Prague, Czech Republic

(2) Center for therapy of lymphedema, Pardubice, Czech Republic

(3) Department of Nuclear Medicine, 2nd Medical School, Charles University, Prague, Czech Republic

Introduction: An early diagnosis and therapy of lymphatic drainage impairment (latent stage) developing after axilla dissection and/or radiotherapy play a key role in further progression of pathological changes both in the lymphatic bed and soft tissues which are being drained by this bed. Insufficiency of valves and development of lymphatic plugs in lymphatic vessels accompanied with lymph retention in surrounding soft tissues lead to the edema and fibrotization.

Methods: Since clinical examination reveals no marked pathology on the arm, the patients are usually treated based on wrong diagnosis. Shoulder joint rehabilitation and non-steroidal antiphlogistics are usually prescribed. Main symptomatology of the latent stage: nonspecific pain, feel of tension, pressure or heaviness in the appropriate region, more significant fatigue in comparison to the other side, recurring erysipelas. Therefore, lymphoscintigraphy plays a key role in diagnostics. In the therapy, as a first choice method we used orally administered proteinases (trypsin, chymotrypsin, papain, bromelain, complemented with rutosid).

Results: In our group of 400 women suffering from various stages of lymphedema we diagnosed latent stage in 15% of patients. After 3 weeks of monotherapy with proteinase mixture, complete recession of subjective complaints was achieved in 90% of patients. After 6 months of treatment, control lymphoscintigraphy showed a complete or nearly complete normalization of lymphatic system function was found in 60% of patients.

Conclusions: Proteinases are able to interrupt a vicious spiral and to normalize a lymphatic circulation in the affected region. They are able to markedly improve a trophicity of already indurated and sclerotized tissue, thus showing an obvious subjective effect for patient.

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FIVE YEARS FOLLOW UP IN PRIMARY AND SECONDARY LYMPHEDEMA: OUR EXPERIENCE

MICHELINI S., FAILLA A., MONETA G.
S.G. Battista Hospital – Rome – Italy –

225 patients with primary lymphedema (96) or secondary (129) at III clinic stage were studied after 5 years by the first observation. 64 had been treated with intensive cycle of combined treatment in hospitalization conditions and 151 with ambulatory cycles.
79 (A group) had been made six-monthly clinic checks, 84 (B group) annuals, 41 (C group) inconstant and 21 (D group) didn't have made any check.
72 patients of A group had made an annual therapeutic cycle at least and 59 of them had made constant therapy in domiciliary condition. 76 patients of B group had made one annual combined treatment. 20 of C group had practiced from one to two cycles in five years and only 5 pts had practiced a new cycle in five years.
In the follow up we have observed:

- A group: substantial maintenance of improvement obtained after the first cycle in 71 patients (89,8%); 8 lymphangitis episodes (5 recurrents); 7 clinic worsening (8,8%);
- B group: substantial maintenance of improvement obtained in 70 patients (83,3%); 7 lymphangitis episodes (4 recurrents); 2 improvements and 12 clinics worsening (14,2%);
- C group: substantial maintenance of improvement obtained in 12 patients (29,2%); 29 clinics worsening; 6 lymphangitis episodes (3 recurrents);
- D group: substantial maintenance of improvement obtained in 3 patients (14,2%); 18 worsening (85.7%); 9 lymphangitis episodes (4 relapses).

Substantial differences results between primary and secondary lymphedema cases were not observed. Substantial differences were not observed in the 5 cases of primary and secondary lymphedema. The study shows the importance of a constant monitoring of the patient suffering from lymphedema and of the need to carry out new therapeutic periodic cycles with domiciliary therapies in support. In this chronic pathology the results in the passing, in the same clinical cases, are caused by personality, cultural conditions, social and economic conditions of the subjects, by proximity of patients residence to the specialized centres for the treatments and, above all, by organizer and supplier capability of private or public health service.

C11

ITALIAN SOCIETY OF LYMPHANGIOLOGY GUIDELINES LOOKING TOWARDS EUROPE AND THE WORLD

CORRADINO CAMPISI, SANDRO MICHELINI*, FRANCESCO BOCCARDO

Department of Surgery (DICMI) - Section of Lymphatic Surgery and Microsurgery - S. Martino Hospital - University of Genoa, Italy
* *Department of Vascular Rehabilitation - S.Giovanni Battista Hospital, Rome, Italy*

The Guidelines of the Italian Society of Lymphangiology are a practical *translation* of the Consensus Document of the ISL, only wrapped up in a customized packaging to meet specific social-health needs of our Country. This contribution, which is open to interdisciplinary and inter-societal collaboration, is to be considered as a *living document*. It will be periodically updated and adjusted to all new information expected to be produced by Evidence-Based and Problem-Oriented Medicine, through the analysis of the International Scientific Literature, which is indeed the necessary foundation of these Guidelines.

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P1

IATROGENIC SURGICAL LESIONS OF LYMPHATIC STRUCTURES OF THE LOWER LIMBS

M.A. BEAUJEAN, M.D. AND W. GORDENNE, M.D.
C.H.U. Liège & Clinique F.S.S., Herstal / BELGIUM

The *surgical approaches of various structures* in the lower limbs, – chiefly for *arterial* or *orthopedic* reconstructions –, through classically positioned incisions can lead to iatrogenic attritions of lymphatic collectors and nodes. These alterations casually generate, early then, transitory, or permanent, distal swelling. Such edema might be present in 27 to 70% of the legs after arterial reconstructions below the inguinal ligament. In a personal series, such situation was formerly observed: in 39% of the cases after «above-knee» (A.K.) procedures and in 80% of the subjects following A-K. plus «below-knee» (B.K.) restorations. According to the literature, more or less persistant B.K. swelling appears in 26 to 80 % of the patients following prosthetic knee replacement due to lymphatic or veno-lymphatic impairments.
Six months after A.K. + B.K. arterial reconstructions, 16% of the patients still demonstrated edema. These **postoperative distal swellings** may result from the disruption of flow-pressure balances in the microcirculation, preexisting lymphosclerosis, or the lack of « muscular - venous pumping ». However, they are chiefly due to **peroperative attritions of lymphatic pathways. Modifications in the approaches** to the arteries lowered the *early incidence* to 11% in A.K. procedures, and to 20% following A.K. + B.K. operations. Only 6% among the limbs having undergone AK + BK procedures still present some edema *6 months later* while 0% of the A.K. isolated procedures had such sequellae.

- Same basic anatomical considerations also concern the explantation of *segments of the «great saphenous» vein* for peripheral or aortocoronary arterial bypasses, or its preparation for «in situ» arterial femorodistal bridgings, extensive *varicectomies*, or various orthopedic operations,...
- A *lymph leakage from lymphatic fistula* due to a skin incision can lead to considerable loss of fluids and proteins. The continuous flowing of lymph on a granulating recent wound may widely delay its healing. It has sometimes to be treated by excising the altered teguments and "en bloc" suturing the defect, because self-healing often needs very long-term local cares.

P2

INJURIES BY PERCUTANEOUS HIGH PRESSURE INJECTION

M.A. BEAUJEAN, M.D., A. THIRY, M.D.
C.H.U. Liège & Clinique F.S.S., Herstal / BELGIUM

Commonly used implements (hydraulic pumps, spray-guns, industrial tools,...) induce high pressures up to 800 Kgr per sq. cm or more in various – sometimes overheated – fluids: air, gases, water or numerous solutions / saturated hydrocarbons of diverse consistencies (paraffins, tars, lubricating oils and greases, waxes,...) / oils, fats, paints, detergents, silicones, pharmacodynamic agents,...).
When such elements are flung through a small-sized jet, **they may behave like high velocity solid projectiles**, then able to perforate the skin and spread in the deeper tissues, according to the firmness of the smitten layers (**"mechanical damage"**). The **"physico-chemical constitution"** of the injected substance(s) induces the general and/or local body **reactions**: they may appear as a non-symptomatic scarrous tissue **or** generate inflammatory response, tissue necrosis leading to amputation, and even extensive intoxication ... Late malignant degeneration is questionable (fibrosarcoma, angiosarcoma,...). The "subcutaneous implantation" of **hydrocarbons** and **silicones** in plastic surgery has been already widely appraised. Injections of **"other stuffs"** chiefly concern **"accidents at work"**. The treatment must consider the **"mechanical lesion"**, the **"chemical alterations"** and a casual **"bacterial contamination"**. The literature about these fairly rare but serious injuries is reviewed. A case of high pressure injection lesion of low viscosity mineral oil in a **hand** is reported: **severe lymphosclerosis and lymphedema** developed over 7 years in the **whole left upper limb** with migration of microscopic droplets of oil, far away from the hand scattering site, up to the axilla and possibly into the mediastinum. Medico-legal aspects and therapeutic possibilities are considered.

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P3

MODIFIED COMBINED DECONGESTIVE PHYSIOTHERAPY IN HEAD AND NECK LYMPHEDEMA MANAGEMENT

KAREL BENDA

ARCUS onco and lymphocentre, Brno, Czech Republic

Lymphedema of the face and neck is frequent complication after radical oncological treatment of ORL malignacies (surgery, radiotherapy tec.). There are several problems in applying standard complex decongestive physiotherapy (CDP) in these cases because of the topography of the lymphatic drainage of the region in question. Therefore, the authors tried to modify the procedures of CDP suitable for early postoperative treatment of the head and neck lymhedema. There have been 9 pts (6 men and 3 women), aged 43 to 61 years (mean 53 years) treated since 11/03 (mean follow up 5 months). All of them underwent radiotherapy. From CDP procedures the manual lymphdrainage, compression masks, special supportive exercises and arrangements in pts´daily regime were applied in targeted individual modifications and sequences. Appropriate data and documentation are presented. Results: in 5 of the patiens exellent, in 4 pts. moderate improvement of the lymphedema was achieved. In 2 pts. local complications were noted which worsened the clinical state temporarily. The authors consider the modified CDP being an efficient tool in the head and neck lymphedema after radical treatment of ORL malignancies management.

P4

NEGATIVE PRESSURE, LYMPHATICS AND BLOOD VESSELS

OLDRICH ELISKA, MILOSLAVA ELISKOVA

Department of Anatomy, 1st Faculty of Medicine, Prague 2, U nemocnice 3, Czech Rep.

Introduction: Treatment of lymphedema is difficult. There are not specific medicaments for therapy of lymphedema. In contemporary period for the treatment of lymphedema are recommended machines that produce intermittent negative pressure or alternation of negative with positive pressure. In available literature are scanty information about the role of lymphatic vessels in vacuum conditions. The goal of our study is to describe morphology behavior of lymphatics and blood vessels in subatmospheric pressure.

Material and methods: Studies were performed on the three groups of the dogs. In the first group of the experiments the lower leg of the dog was placed in to the box from which the air was suck up by vacuum pumps. In the second group of experiments the whole dog was placed in to the box. The animals were intubated by endotracheal cannula and the top of the cannula was fixed outside the box. With this way the dogs breathed the atmospheric air. In the third group of experiments only lower part of the body with the legs were placed into the box. In all cases of experiments the air from the boxes was suck up by vacuum pumps. Cardiac action, blood pressure and partial tissue oxygen were monitored through the all period of experiment. The negative pressures in the levels of 10 mmHg, 20-25 mmHg, 30-35 mmHg and 45-55 mmHg were maintained for period 1, 2 and 4 hours. After finishing of experiments the samples of dermis and subcutaneous tissue from the thigh, shin, abdominal and thoracic wall were excised and processed by histological and electronmicroscopical methods.

Results: In all samples of subcutaneous tissue and dermis the edema was present. The ultrastructure of skin lymphatics which were influenced with low negative pressure (negative pressure 10 mmHg) for period 1 hour was a little changed. In some cases no morphology changes were found in other ones discrete changes in the sense of increasing pinocytosis and light opening of interendothelial channels of lymphatics were visible. Under the circumstances of higher negative pressure (negative pressure 30-50 mmHg) for period 1 and 2 hours the subendothelial lymphedema, vacuolation of endothelial cells, folding of the lymphatic wall, desquamation of single endothelial cells and large gaps between endothelial cells with protrusion of interstitial tissue to the lumen of lymphatics were found. The similar changes in blood capillaries were found but no in the same extent as in lymphatics.

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P5

FACIAL LYMPHEDEMA IN MELKERSSON-ROSENTHAL SYNDROME

ISABEL FORNER CORDERO,
MAGDALENA QUEROL GINER,
MONTSERRAT ÉVOLE BUSELLI,
MIGUEL HERNANDEZ MARTI

Lymphedema Unit, Rehabilitation Department, Hospital Universitario La Fe, Valencia, Spain
Dermatology Service, Hospital Universitario La Fe, Valencia, Spain
Pathology Service, Hospital Universitario La Fe, Valencia, Spain

The Melkersson-Rosenthal syndrome is a rare disorder described in 1928 and in 1931, characterized by the triad: recurrent facial edema, facial nerve paralysis and lingua plicata. The complete triad is very rare, and monosymptomatic variants are more common, that's why the diagnosis may be difficult. It is an uncommon cause for facial lymphedema.

Case Report: We present the case of a woman diagnosed of Melkersson-Rosenthal syndrome that has developed a facial lymphedema. A 25-year-old woman with a right-sided lymphedema of the face and upper lip came to the Lymphedema Unit. Her medical history presented a recurrent angioedema of the face and lip that started at six years, with multiples outbreaks that were irregular and often related with herpes simplex virus. She also presented with the facial swelling an erytematous eruption that was painless and non-pruritic accompanied with nonpitting edema.
In the last times, the attacks have become more and more frequent, and now she is having one recurrence per month that stays for 7 to 10 days. In the dematology service, the magnetic resonance showed a non hemorrhagic, non ischaemic, non malformative process. Only the edema in the right cheek with a trabeculated fat tissue and cervical adenopaties were identified. All the allergy test results were negative. The biopsy of the lip showed a non necrotizing granuloma and perivascular linfocitary infiltration.
She was treated with metronidazol, estanozolol and corticosteroids with lack of response. Physical therapies for lymphedema will try to reduce the swelling and fibrosis.

P6

OEDEMA OF THE HANDS IN INTRAVENOUS COCAINE ADDICT PATIENTS

A. HAMADÉ*, P. MICHEL**, C. EL HEK*,
C.P. STRIMBU*, E. SERER*, K. YAWOVI*,
P. ALLIMANT*, B. ZEYER*, G. DALCHER*

* *Department of Vascular Surgery-Angiology, Centre Hospitalier Émile Muller - Mulhouse - France*
** *Cabinet de phlébologie - Wingen-sur-Moder - France*

Purpose: The repeated intravenous (i.v) injections of cocaine can provoke in addict patients venolymphatic decompensation.

Patients: We report the case of 3 patients, one man (36 years) and 2 women (28 and 32 years), ex-i.v-cocaine addict from: 9, 6 and 5 years, all substituted by buprenorphine. The 3 patients presented painful oedema of hands, who appeared 16 months, 2 years and 3 years after stopping i.v injections. Artery echodoppler was normal. 2 patients presented sequella of superficial venous thrombosis of the back of the hand. In 2 patients the lymphoscintigraphy of upper limbs showed lymphatic insufficiency. The third refused lymphoscintigraphy. Cardiac, hepatic and renal examination are normal.

Conclusion: Few years later, ex-i.v cocaine addict patients can present oedema of hands. This oedema could correspond to a venolymphatic insufficiency, consecutive to numerous i.v injections, followed by venous thrombosis and infections.

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P7

A QUALITATIVE INVESTIGATION OF THE LIVED EXPERIENCE OF LYMPHOEDEMA

DEBBY VEIGAS, VAUGHAN KEELEY
Derby Hospitals Foundation Trust, Derby, UK

Purposes:

1. To elucidate the nature of patients' experiences of living with lymphoedema.
2. To inform other work on developing a condition-specific quality of life measure for lymphoedema, by identifying areas of experience which are important for patients and can be included in the quality of life tool.

Methods: This was a phenomenological study using data from semi-structured taped interviews of 22 patients, who were already being treated for lymphoedema in our clinic. The data were subsequently transcribed and analysed using a method of thematic content analysis, adopted from the grounded theory approach.

Results: The main themes which emerged were feelings of loss, both actual and potential, relating to the individual's role, work, body image, self esteem and embarrassment.

Conclusions: The themes identified concur with those reported in existing literature and support the domains addressed in our quality of life measure.

P8

THE DEVELOPMENT OF A CONDITION-SPECIFIC QUALITY OF LIFE MEASURE FOR LYMPHOEDEMA (LYMQOL)

VAUGHAN KEELEY, DEBBY VEIGAS, SUE CROOKS, JANE LOCKE, HELEN FORROW
Derby Hospitals Foundation Trust, Derby, UK

Purpose: To develop and validate a condition-specific quality of life measure for lymphoedema (LYMQOL).

Methods: A condition-specific quality of life measure for lymphoedema was developed by the multidisciplinary team in our lymphoedema cllinic. The tool covers the following domains: symptoms, body image issues, function and mood. The structure of the questionnaire is similar to that of the EORTC QLC-C30 tool used for clinical trials in cancer and, indeed, the mood section is taken from the EORTC tool with permission. Separate tools have been developed for arm and leg lymphoedema. Inititial stages of the validation included a comparison of the "score" using LYMQOL with that of the EORTC QLQ-C30 as a "gold standard".

Results: The tool and the results of this early stage of validation will be presented.

Conclusions: We hope that this tool will provide a way of measuring the impact of lymphoedema on the quality of life of sufferers and also demonstrate improvement following treatment.

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P9

EVALUATION OF NORMAL MESORECTAL LYMPH NODES BASED ON THE DATASET OF THE VISIBLE HUMAN

I.C. KIRICUTA (1), S.M. QATARNEH (2), A. BRAHME (2)

(1) Institute of Radiation Oncology, St. Vincenz-Hospital, Limburg, Germany

(2) Department of Medical Radiation Physics, Karolinska Institute, Stockholm, Sweden

Background and Purpose: Despite the frequent application of the total mesorectal excision, very few data regarding the location, number and distribution of lymph nodes within and around the rectal mesentery exist. The scope of this study was to describe the number, size and anatomical topography of mesorectal lymph nodes in the so-called "visible human" male dataset.

Materials and Methods: The dataset from the visible human male was studied. The male whose body was used as visible human was 38 years old at the time of death. The cadaver was perfused with 1% formalin and anticoagulant. Optical anatomic mycrotome produced slices at 1 mm interval and with a resolution of 2.8 pixels per mm were carefully examined. The region between the common iliac bifurcation and the anal sphincter was investigated.

Results: A total of 27 mesorectal lymph nodes were identified. The majority 17 of 27 (63%) of the lymph nodes were above the peritoneal reflection and 10 of 27 (37%) below it. The majority of the nodes were located in the left lateral and posterior rectal mesentery. The majority of the lymph nodes were 3 mm or less in diameter. Twenty lymph nodes were 1 mm or 2 mm in size, 5 nodes were 3 mm, and only 2 were 4 mm. The lowest situated lymph node was 2.8 cm from the anal sphincter. A total of 21 lymph nodes in the presacral and laterosacral space were identified.

Conclusion: These data are of importance for the definition of quality of the pathological examination of the mesorectal nodes.

Key words: rectum, mesorectum, lymph nodes, visible human, IMRT.

P10

TOPOGRAPHY OF THE LYMPHATICS OF THE BREAST BASED ON THE VISIBLE HUMAN DATASET

ION-CHRISTIAN KIRICUTA (1),
SHARIF MOHAMED QATARNEH (2),
ANDERS BRAHME (2)

(1) Institute of Radiation Oncology, St. Vincenz-Hospital, Limburg, Germany

(2) Department of Medical Radiation Physics, Karolinska Institute, Stockholm, Sweden

Background and purpose: The appropriate application of 3-DCRT and IMRT for breast cancer patients requires a standardization of the procedures for the delineation of target volumes. The scope of the paper is to present the data aquiried by studying the nodal location and topograpical distribution in axial slices in the Visible Human (VH) datasets that makes a standardization possible.

Materials and Methods: The location, number and size of regional lymph nodes of the breast were studied by careful investigation of the axial anatomic optical microtome slices of the VH dataset. The lymphatics considered as loco-regional for the breast includes the axillary, the internal mammary chain and the supraclavicular nodes which were identified by the investigation of the VH female and male datasets. Visualized were more than 70 lymph nodes as small as 1-20 mm.

Results: The axillary nodes identified were classified conform to the Berg level classification. Thirty-eight left located (23 level I and 15 level II) and thirty-five right located (22 level I and 13 level II) axillary lymph nodes in the visible human male were identified. The Rotter lymph node on the right side was identified. Axillary lymph nodes located lower than the apex of the scapula on each side were identified. In the visible human female dataset except the axillary lymph nodes, supraclavicular and internal mammary nodes, in breast located lymph nodes were identified.

Conclusions: The topographical distribution of a large number of normal sized lymph nodes of the regional lymphatics of the breast of the VH male and female dataset was identified. A 3D representation of the locoregional lymphatics of the breast was performed.

Keywords: breast cancer, regional lymph nodes, nodal classification, visible human, target volume.

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LYMPHOSCINTIGRAPHY AND LYMPHEDEMA: FROM PREVENTION TO PROGNOSIS

MICHELINI S.**, FAILLA A.**, MONETA G.**, MANGO L.*, CAMPISI C.***, BOCCARDO F.***

* *Nuclear Medicine Department: Azienda Ospedaliera S. Camillo-Forlanini, Rome – Italy*

** *Vascular Rehabilitation: S. Giovanni Battista Hospital, Rome – Italy*

*** *Lymphatic Surgery and Microsurgery: S. Martino Hospital, Genoa – Italy*

Already for any years, the guidelines of the I.S.L. describes the lymphoscintigrapy as the "diagnostic gold standard" in the study of lymphedemas. After the subcutaneous injection of the tracer in the interdigital spaces of the hands and/of the feet, must be stimulated the muscular pumps of the limbs for 15 minutes and subsequently must be performed a revelation with a gamma camera of the distribution and of the times of appearance of lymphonodes after 30' – 60' – 90'.
We have examined 423 subjects: 40 of a control group, 121 suffering from unilateral or bilateral primary lymphedema of the limbs, 205 with a secondary lymphedema of the limbs and 57 with a primary or secondary subclinical lymphedema.
The exam pointed out:
- in clear clinical cases: presence and distribution of "dermal back flow" along the whole limb (in the controls after treatment it was reduced in 79,5% and in 20,5% disappeared);
- absence of "dermal back flow " in healthy subjects or in subclinical lymphedemas (blood related of patients suffering from primary lymphedema or patients subjected to a lymphoadenectomy at the root of the limb but with coinciding limbs);
- presence of lymphonodal stops along the limb in 83,4% of cases of clear lymphedema and in 52,4% of subclinical cases (often are bilateral to testimony a constitutional predisposition). Absent in healthy subjects;
- presence of lymphatic alternative pathways (sovrapubic, superotoracical) in 77,8% of cases, also in 57,9% of healthy subjects;
- reduced or been missing visualization of lymphnodes at he root of the limb in 94,7 % clear clinical cases. Normal visualization in healthy subjects;
- reduced visualization in 29,2% of subclinical primary cases (21,4% unilateral, 7,6% bilateral).

In patients with a post-thraumatic oedema (57 cases), in 24,2% of cases a reduced presence of lymphnodes at the root of the limb with a presence of "dermal back flow" corresponding to the suffering anatomic area, was observed. In these cases the prognosis is less fortunate in order to a complete recovery.
Among 41 cases of post-saphenectomy lymphedema for aorto-coronaric by pass, 26 (57%) showed a reduced presence of lymphonodes of the groin of the operated limb; in the controlateral groin all was normal. In these cases, a pre-surgical investigation through lymphoscintigraphy could be avoid iatrogenic forms of lymphedema.
In conclusion, the authors underline the importance of lymphoscintigraphic exam in the study of lymphedema of the limbs to point out a:
- diagnostic definition;
- therapeutic address;
- prognostic definition.

P12

COMBINED PHYSICAL TREATMENT IN PATIENTS WITH LYMPHEDEMA: WHICH AND HOW?

MICHELINI S., FAILLA A., MONETA G., MICHELOTTI L.*, SANTAMBROGIO F.*, CALABRESE S.*

S. Giovanni Battista Hospital

* *Vaclav Vojta Rehabilitation Center*

The clinical experience acquired on 2500 patients along 15 years of vascular rehabilitation activity, shows that physical combined treatment in lymphedema provokes different clinical reactions in each case in relation with the clinical stage, the tissutal suprafascial component, the alternative pathways in each patient but, above all, in relation with the times of application and the modalities of execution of therapeutic techniques.
Manual lymphatic drainage, considering the common "terminus" of lymphatic pathways coming from lower limbs and the different "terminus" of lymphatic pathways coming from upper limbs, must be performed bilaterally in lower limbs (also in unilateral lymphedema) and unilaterally in upper limbs. In patients underwent a double mastectomy with a double large arm, over then the treatment of the arms, must be also stimulated back and lateral alternative pathways.
In the lower limbs bilateral lymphedema (especially in presence of absence or damage of lateroiliac lymphonodes), through the lateral and back alternative pathways, lymph must reach armpit and supraclavear lymphonodes.
Sequential pressure therapy, best in primary lymphedemas, must be bilaterally executed in lower limbs, unilaterally in upper limbs.
In all cases must be taken into consideration all the local contraindications (inflammations) and the systemic contraindications (cardiac lack of balance, arterial hypertension).
Elastic compression represent the main tool of treatment, especially in those patients where can be performed an adequate muscular work during the day. It will be unelastic in multilayer in valid subjects and bielastic in monolayer in less valid or bed rest patients.
Isotonic gymnastic, best if executed with elastocompression on, wants to activate the main groups of muscles of the limbs in order, also, to restore muscular trophysm when there is a lack of balance of it.
In case of consequences of radiotherapy, with neurological peripheral damage, we meet also muscular tone and trophysm deficit and also in this case isotonic gymnastic is useful.
Ultrasound therapy (5W cm2 of intensity) is employed in presence of sclerosis of derma or fibrosis (usually in declivous sides) due to a greater protein interstitial concentration. Times of treatment goes from 5 to 30 minutes a day.
Respiratory gymnastic completes the treatment promoting the return of lymphatic fluids through an indirect mechanism of pressure gradients between the limbs and the abdominal and mediastinic areas, all with the participation of diaphragm movements.
In conclusion, physical combined treatment is framed in a complete project that develops around the single patient and request personalized techniques and times of application for each clinical case.

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LYMPHANGIOGENESIS AND HEMANGIOGENESIS IN LESIONS OF MYOCARDIAL INFARCTION

EIKICHI OKADA, YURI AKISHIMA, KINJI ITO, TOSHIHARU ISHII

Department of Clinical Pathology, Takaoka City Hospital, Toyama, Japan
Department of Pathology, Toho University School of Medicine, Tokyo, Japan

Purpose: Observation of lymphangiogenesis and hemangiogenesis in lesions of myocardial infarction.

Methods: Six autopsy cases of myocardial infarction were used in this study. The paraffin sections of the myocardium were subjected to immunohistochemistry using anti-LYVE-1 antibody to identify lymphatic vessels and anti-von Willebrand factor antibody to observe blood vessels.

Results:

1. Main lesions of myocardial infarction: In the lesions of acute myocardial infarction composed of coagulation necrosis, no lymphatic vessels were observed by anti-LYVE-1 immunohistochemistry, however, dilated lymphatic vessels were present around the infarction lesions. By anti-von Willebrand factor immunohistochemistry, reaction with blood vessels became blurred probably due to ischemic necrosis. In the lesions of subacute phase composed of granulation tissue, regenerating blood vessels were observed by anti-von Willebrand factor immunohistochemistry. No lymphatic vessels were observed in the subacute lesions. In the periphery of the chronic lesions composed of scarred fibrosis, both dilated lymphatic vessels and dilated blood vessels were present.
2. Focal small necrotic lesions around main lesions: In the acute focal small necrotic lesions, no lymphatic vessels were observed by anti-LYVE-1 immunohistochemistry. Normal blood vascular distribution was preserved in the focal small lesions when observed by anti-von Willebrand factor immunohistochemistry. Lymphangiogenesis was observed in subacute focal small lesions when observed by anti-LYVE-1 immunohistochemistry.

Conclusion: In the main lesions of myocardial infarction, lymphangiogenesis observed in later period compared to hemangiogenesis. In the focal small necrotic lesions, lymphangiogenesis observed in rather early period, and no hemangiogenesis was observed.

P14

PHLEBEDEMA VS. LYMPH EDEMA-MATERIAL, METHOD (PART I)

F.C. RADA, RALUCA MOCANU, VALERIA MOCANU, MIHOC T., BLAJ S., LUCIA PARVAN, ANA MARIA GLAVAN, I.O.RADA

The Romanian Society of Lymph logy, III[rd] and I[st] Clinic of Surgery UMFT, Timisoara, Str. Siret no. 6

Introduction: Defense constitutes the principal function of the lymphatic system. The circulatory function is secondary and it includes two parts: compulsory (macromolecular) and optional (water and electrolytes).

Material. Method: We have included in this study 3 groups of patients: I-acute deep thrombophlebytis (TPA), II-post-thrombosis syndrome (SPT), stages V and VI (CEAP), III-lymph edema of lower limbs stages IV and V(LF), three ethiopathogenic forms (of LF at which at the admittance has been applied a compressive bandage): a) primary LF (LFP), b) secondary LF (LFS) postradiosurgical and c) LF posterysipel (LFE); TAP-19cases, SPT-9, LF-32 (LFP-11, LFS-17, LFE-4), totally 58 patients (18 W and 14 M). There has been measured the quantity of subcutaneous liquid obtained in the time unity (3 hours in the first day after admittance-after a rest in laying down position of 20 h), there has been measured quantitatively the proteins in this liquid (of edema) and in the serum and there has been accomplished CT explorations (axial sections for the foot, through the metatarsian and the lower 1/3 of the shank) and IRM (axial and sagital sections for the foot and lower 1/3 of the shank and the thigh) and lymphoscintigraphy.

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LYMPH EDEMA VS. PHLEBEDEMA – RESULTS (PART II)

F.C. RADA, RALUCA MOCANU, VALERIA MOCANU, MIHOC T., BLAJ S., LUCIA PARVAN, ANA MARIA GLAVAN, I.O. RADA

The Romanian Society of Lymph logy, III[rd] and I[st] Clinic of Surgery UMFT, Timisoara, Str. Siret no. 6

Results: At the patients from the lot I –TPA-the average quantity of edema liquid (CMLE)-79ml, total proteins- 0,61g‰, lot II- SPT- CMLE- 42ml, proteins-0,64g‰, lot III- LF- CMLE- 1,4ml, proteins – 2,3g‰. The clinical diagnosis has been confirmed by lymphoscintigraphy: the speed of the lymphatic drain at the patients with TPA and SPT has been > than on undignified side (counter side), at the lot with LF has been < than on the counter side (in the case of LF on one side). IRM and CT emphasized at the patients from lot I-TPA-tiger-like spaces (areas) occupied by the hypo-oncotic edema liquid, among the areas with adipose tissue. At the patients from the lot II-SPT- the aspect of hypotrophic dermofibrolipo sclerosis and at the LF-lot III- hypertrophic dermo-hypodermic fibro sclerosis disposed in thick lines, nonsystematic that surround massive accumulations (important) of adipose tissue.

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THE COMPULSORY VASCULAR LYMPHATIC LOAD VS. THE OPTIONAL LOAD-DEBATE, CONCLUSIONS (PART III)

F.C. RADA, RALUCA MOCANU, VALERIA MOCANU, MIHOC T., BLAJ S., LUCIA PARVAN, ANA MARIA GLAVAN, I.O. RADA

The Romanian Society of Lymph logy, III[rd] and I[st] Clinic of Surgery UMFT, Timisoara, Str. Siret no. 6

Debate. Conclusions: The normal interstitial liquid is normo-oncotic. The edema liquid causes alterations/ modifications in the extra cellular matrix from the cause (venous vs. lymphatic) to the effect (hypo/hypertrophy). The edema from the acute or chronic venous failure is hypo-oncotic and abundant, the edema from the SPT (stages V and VI) is reducible in the lower rest (48-72h). The lymphatic structures maintain themselves in the presence of a high vascular dynamic, in hyper function (to these patients with SPT), in standing up position as in laying down position (the quantity of interstitial liquid in this case was higher with 58% in standing up position as in laying down position and the quantity of proteins was lower with 27% in the liquid obtained in standing up position). The lymphatic edema (the free interstitial liquid) is hyper-oncotic, reduced quantitative and no reducible in laying down position. The hyper-oncotic characteristics develop the accumulations of adipose structures and the process of the hypertrophic dermo-hypodermic fibro sclerosis. The phlebolymph edema, in this context, is a subjective (emotional) syntagma.

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P17

TRANSCUTANEOUS OXYGEN PARTIAL PRESSURE IN UNILATERAL LYMPHEDEMA

Y. TAMAI, A. TOUDOU, A. IMADA AND M. OHKUMA

Department of Nephrology and Dialysis, Department of Dermatology, Sakai Hospital, Kinki University, School of Medicine, Osaka, Japan, 590-0132*

Purpose: pO2 of proxymal lymph is one fifth of that of venous blood. It is suspected that tissue pO2 of lymphedema is also low.

Material and Method: Six cases of unilateral lymphedema, 5 cases of nephrotic edema and 3 volunteers were evaluated for transderminal oxygen partial pressure at 4 points of the lower extremities. Blood flow was also checked at the leg of the same patients.

Result: pO2 of the lymphedematous extremity is also lower (more than 10%) than that of uninvolved extremity in the 6 unilateral lymphedema. The student t-test shows also the same result with a significant difference at all examined 4 points. Some nephrotic edema reveals also low pO2. And The volunteers show normal pO2. There was no difference in Laser-Doppler blood flow between the lymphedematous and the uninvolved extremity.

Discussion: Reisshauer et al reported pO2 of the lymphedematous extremity is sometimes low and some of them become normal after MLD. But they are different after the age (The European J of Lymphology 12, No. 40:13-17,2004). In this examinations all data are obtained in the same patients and th ey are not influenced by the age. This result may be used for diagnosis and differential diagnosis of lymphedema. The epidermal and dermal pathological changes in the lymphedema may be associated with this low pO2.

Conclusion: Six cases of unilateral lymphedema show low pO2 in the involved extremity.

P18

A 30 OR 90 MMHG – MANUAL OR PNEUMATIC – DRAINAGE IN PRIMARY LIMB LYMPHOEDEMA: A COMPARATIVE PLETHYSMOGRAPHIC STUDY

THEYS SERGE, DELTOMBE THIERRY, JAMART JACQUES, SCHOEVAERDTS JEAN-CLAUDE, BUCHE MICHEL

Cliniques Universitaires de Mont-Godinne, UCL, 5530 Yvoir, Belgium

Purpose: Volumetric effect of a 30 or a 90 mmHg external pressure has been evaluated in primary lower limb lymphoedema (PLLL).

Methods: Starting at the root of the limb, a retrograde drainage is carried out manually with a light manual lymph drainage (MLD) and pneumatically with a 7 chamber boot of a programmable sequential pump (QIM 914,2). The pneumatic retrograde drainage (PRD) (program 50) was used twice: once with 30 mmHg, once with 90 mmHg. The 16 min session of those 3 procedures were spaced in time by 15 min rest. The order of execution offered 6 possibilities and was permuted after each case. Relative volume changes (%∂V) of the calf were recorded continuously (108 min) with a Hg plethysmograph (SeriMed PL2) gauge fitted 10 cm below the knee. At present, 8 consecutive women (34-year old) with massive (49 cm of calf circumference) and old (18 years) PLLL (at birth: 2, praecox: 5, tarda: 1) completed the study.

Results: Whatever the pressure or technique, all PLLL experienced a progressive calf decongestion. Volumetric calf decrease reaches 0.07%δV/min manually, 0.06%δV/min by means of a 30 mmHg PRD and 0.15%δV/min by means of a 90 mmHg PRD. With 30 mmHg, there was no difference between manual and pneumatic techniques. With 90 mmHg, decrease is noticeably higher ($p < 0.001$). After stopping management, improvement mainly persisted with respectively a slow reappearance of 0.01%δV/min; 0.01%δV/min., 0.05%δV/min.

Conclusions: Promoting greater decongestion, a 90mmHg pressure may offer additional benefit for women with old PLLL.

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THE DUKE HEALTH PROFILE: A SCALE TO MEASURE THE QUALITY OF LIFE

G. THIBAUT, D. WAHL
Faculté de Médecine de Nancy, France

The treatment of patients who suffer from lymphedema consists of physiotherapy and/or in some selected cases, surgery.
Many signs permit to appreciate the beneficial effects of these two kinds of therapy. The most important of them is the reduction of limb volume evidenced by a decrease in linear dimensions which can be observed by the physician and the patient himself. Nevertheless it would be of great interest to rigorously classify the opinion of the patient; to that effect, his opinion could be written on a well established form which must be identical for every body.
The example of the Duke health profile, a 17-item measure of health and dysfunction could be, after discussion, accepted by all centers which treat lymphedematous patients.

P20

EARLY RESULTS AFTER LYMPHATIC-VENOUS DERIVATIVE MICROSURGERY FOR UPPER LIMB LYMPHEDEMA: MY PERSONAL EXPERIENCE

ROEL VENKEN
Hospital H. Serruys, Ostend, Belgium

Purpose: Is there improvement in upper limb lymphedema after lymphatic-venous derivative microsurgery?

Methods: 15 patients (stage III: 9 patients; stage IV: 5 patients; stage V: 1 patient) with secondary arm lymphedema underwent between october 2003 and april 2004 lymphatic-venous derivative microsurgery at the upper arm. An end-to-end anastomosis (conisation technique) was performed between lymphatic vessel(s) (deep and/or superficial) and a side branche of the brachial vein. Post-operative volume measurements (water displacement method) after 1, 3 and 6 months were compared with pre-operative measurements.

Results: Mean age was 67 years (55-82 years), presence of lymphedema ranged from 1 to 17 years (mean: 4.4 years). Mean pre-operative volume measurements of the affected arm was 2317 ml (1440 ml - 3200 ml). Pre-operative volume difference between the affected limb and the normal limb ranged from 275 ml to 1820 ml (mean 851 ml). Post-operative follow-up: 3 patients at 1 month, 7 patients at 3 months, 5 patients at 6 months. All patients noted a subjective improvement. All but one patient had improved post-operative volume measurements. Overall volume reduction was 27.5% after 1 month, 36.3% after 3 months and 46.1% after 6 months.

Conclusions: Although this is a small group of patients and long term results are lacking, these early results show improvement in upper limb lymphedema.

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P21

LYMPHATIC VESSEL "OVERLOAD" ON THE ARM AFTER AXILLA DISSECTION

(1) MARTIN WALD, (2) HANA KŘÍŽOVÁ,
(1) JAN ADÁMEK, (1) RENATA ZEMANOVÁ

(1) Department of Surgery, 2nd Medical School, Charles University, Prague, Czech Republic
(2) Department of Nuclear Medicine, 2nd Medical School, Charles University, Prague, Czech Republic

Introduction: Hypertension in lymphatic vessel caused by restriction or closure of its lumen peripherally from the scar in axilla represents a so far unpublished complication of axilla dissection. This phenomenon, which authors call "overload", is not limited only to the classical axilla dissection during surgery for breast cancer. It very often occurs in patients undergoing surgery for benign affection in the axilla.

Methods: During clinical examination, a limited mobility of shoulder joint and horizontal and/or limited hyperextension in elbow is found. Patient complains about pain on pull coming from the axilla, leading along the inner side of arm into cubitus and on the anterior forearm to the wrist and fingers. Palpation discloses a painful "cord" in the axilla and/or cubitus bridging axillar or cubital pit. The same painful cord is usually found also on the arm and forearm. Lymphoscintigraphy proves an isolated congestion in the lymphatic vessel, so far without retention of radioactive pharmaceutical in soft tissues.

Results: "Overload" phenomenon is a very frequent cause of unsuccessful rehabilitation of shoulder joint after surgical intervention in the axilla. Moreover, in the wrist area it may imitate syndrome of carpal tunnel. Overload may also be found in the chest and epigastric region distally from the mastectomy scar.

Conclusion: In case of unsuccessful rehabilitation after surgery of axilla or severe subjective complaints in homolateral arm the authors recommend to focus on the overload as a possible cause. If proven, recent experience has so far always sufficed with orally administered proteolytic enzymes and very gentle manual lymphodrainage. The complication is usually managed within 6-8 weeks and an effective shoulder joint rehabilitation can be continued.

P22

DISSECTION OF SENTINEL NODE IN BREAST CANCER – CONDICIO SINE QUA NON?

(1) MARTIN WALD, (2) HANA KŘÍŽOVÁ,
(1) JAN ADÁMEK, (1) RENATA ZEMANOVÁ

(1) Department of Surgery, 2nd Medical School, Charles University, Prague, Czech Republic
(2) Department of Nuclear Medicine, 2nd Medical School, Charles University, Prague, Czech Republic

Introduction: The conception of sentinel node dissection (SND) proceeds from two aims: to discover condition of regional lymphatic nodes (staging) and to minimize both early and late post-surgical complications following axilla dissection. The authors intend, however, to draw attention to another SND aspect – significantly more precise surgical and histological examination of condition of lymphatic nodes and reduction of possibly false negative results. The authors' belief based on their own repeated experience is that in total mastectomy sentinel node (SLU) may be removed either with the whole breast or stays off the preparation. Regions where the SLU usually occurs is, thus, not taken heed of anymore during axilla exenteration. Even higher danger of missing and leaving SLU in situ threatens in case of high incision in axilla during partial mastectomy in discontinuity.

Material and methods: Since May 2001 to June 2002 the authors performed SND in 43 patients (T1-2); the surgery was in all cases finished by dissection of I. and II. etage. SLU was labeled by a subcutaneous application of radioactive pharmaceutical above the focus of primary tumor (15 MBq ^{99m}Tc Senti-Scint).

Results: SLU was peroperatively identified using gamma-camera in all 43 patients. In 26 patients (60,5%), no metastatic affection of axillary lymphatic nodes was found. In 7 patients (16,2%), nodal metastasis was proven both in the sentinel node and other nodes of I. and II. etage. In 9 patients (21%), metastases were found only in SLU. In 1 patient (2,3%), none of the nodes was affected. Metastatic process has, however, spread into axilla along vessels and nerves.

Conclusion: The authors have shown that if SLU is not unambiguously identified, there may be a risk of up to 21% false negative results "N". In partial interventions in discontinuity the authors recommend to perform SND every time, even if the surgery is finished by axilla dissection. In total mastectomy, a fundamental attention concerning SLU has to be drawn to the distal parts of I. etage. However, unless SLU has been labeled, its distinguishing from surrounding fat tissue is very difficult.

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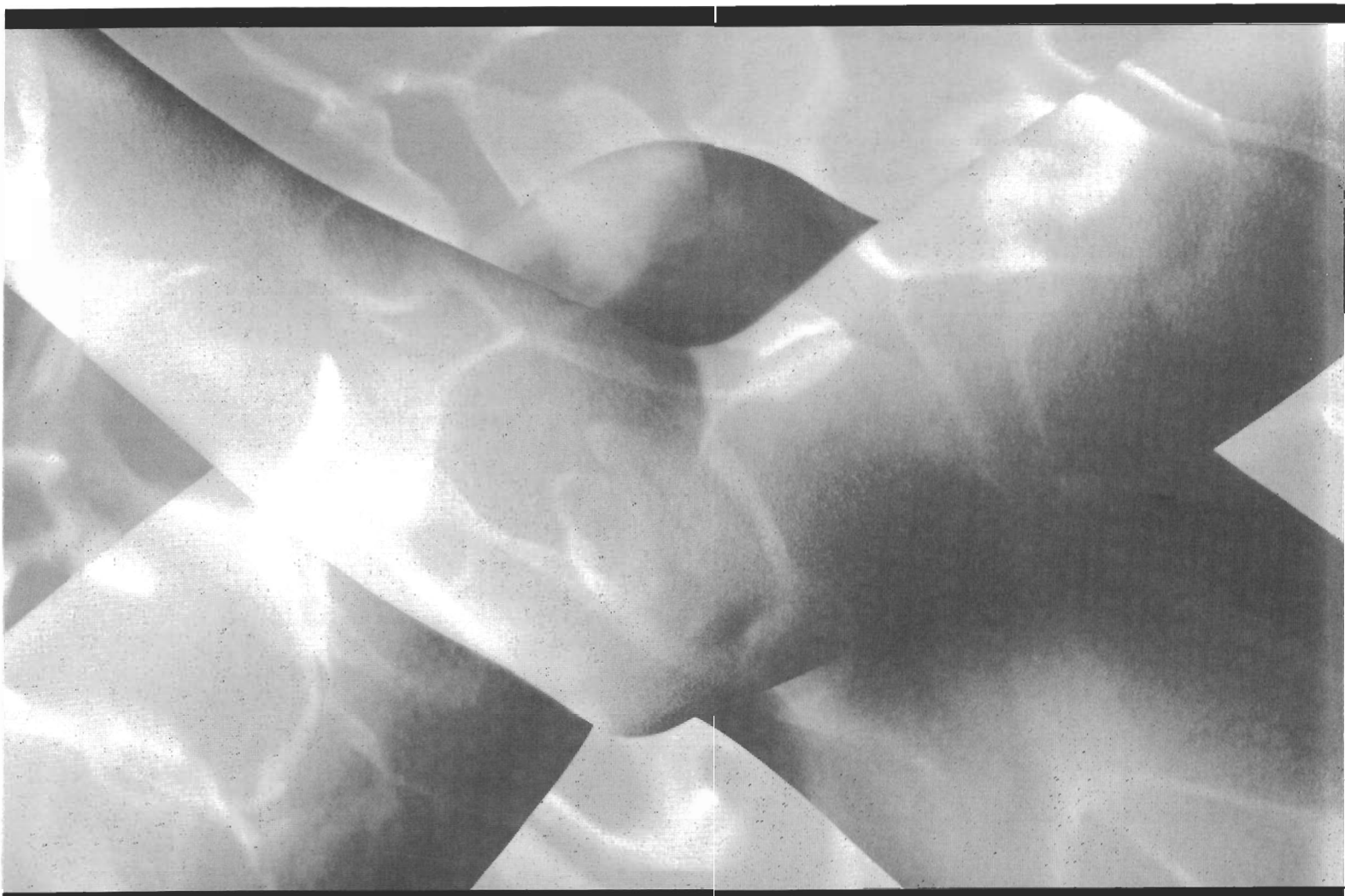

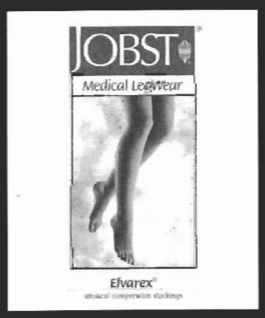

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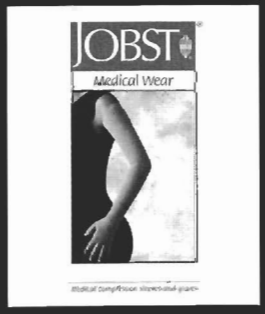

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