Talking to Dr. Hakan Brorson
By Joyce Verhoeff

Finally he was in the Netherlands, Dr Hakan Brorson, the man who linked liposuction and third stage lymphedema. The doctor who promised patients with non-pitting arm lymphedema a higher quality of life. Nowadays there is also treatment for patients with a non-pitting lymphedema of the leg.
He taught his method to five teams in the world. Two teams in the US, in Boston and Stanford, one team in Scotland, another team in Denmark and the other one in the Netherlands: the team of the lymphedema clinic in Drachten, with Robert Damstra in charge together with vascular surgeons Harry Voesten and Pieter Klinkert. We met in the Nij Smellinghe Hospital in Drachten.

Introduction:

Plastic surgery is about three kinds of surgery: plastic, reconstructive and aesthetic surgery.
Plastic and reconstructive surgery include for example the restoration of the nose lost in a traffic accident or a by cancer affecting the ear, severe burns; the malformations in children like harelip, open palate or malformations of the genital region are treated.
Aesthetic surgery is about making reconstructions as good as possible, but also to make people look younger and more beautiful than they are.
A reconstruction of the breast of a breast cancer patient to make the breast look like the other one is of course an aesthetic thing also but it is not cosmetic surgery like botox injections and breast enlargements.

Dr. Brorson is working at the Malmö University Hospital, Malmö, Sweden in the reconstructive surgery. He wrote a thesis called 'Liposuction and controlled compression therapy in the treatment of arm lymphedema following breast cancer', Malmö, 1998.

Dr Brorson, how did you get interested in the swollen arms of breast cancer patients?
"I was an orthopedic surgeon for five years and my final training included plastic surgery I was requested to stay at the department and have now worked there for about 20 years.
I was doing liposuctions for other reasons and one day in 1993 a former chief came to me with a breast cancer patient with one or two liters extra in her arm. I had seen, but never touched a lymphedema. It should show pits on pressure, but it didn't. It was a non-pitting edema. It was soft and felt like fat. Nobody had ever before linked non-pitting lymphedema and fat. And I saw the possibility to deal with this in a way that no one had done before, with liposuction. I suggested my chief: "Why don't we make a MRI-scan and if it shows excess fat we could remove it by the use of liposuction?" He agreed. And after that first operation I had a research project.

After this first patient was operated and the arm was normalized, we wanted money for research. I got funding for this project and for compression garments. Our hospital was one of those, which didn't provide garments for the patients. The patient had to pay for it herself or go to the social welfare. These garments are medicine for lymphedema. They are like insulin for patients with diabetes. You have to use just the amount you need, this can differ from person to person. After the specialist has prescribed the garment he needs to follow the patient closely on a regular basis to see when the swelling returns to be able to intervene as soon as possible by prescribing new garments. These periods may vary for different groups of patients: a 70-year-old lady, or an active 20-year-young woman or a man with a breast cancer or a melanoma. It all depends on the lifestyle of the patient.
One day I was interviewed by a newspaper journalist and I told him about the garments, which had to be paid for by the patient herself. The newspaper's headline the next day was: 'Women with cancer are discriminated at the University Hospital'. Within a week we had funding for garments. I had written to politicians and to the hospital manager earlier in this matter, but to no avail."

How did you find out that the tissue, formed by lymphedema is like fat and reacts like fat and that it was possible 'to suck it out'?
"As I mentioned before we analyzed the arms with MRI-scans and we found an increase of adipose tissue. Later we understood that there are also other diseases that show increases of adipose tissue. For example Crohn's disease, an inflammatory disease of the intestines, shows increase of fat in the wall of the intestine where inflammation is present.
Patients with over activity of the thyroid, hyperthyroidism or Grave's disease, have eyes that bulge. There is larger amount of fat in the socket of the eye. An analysis of the fat shows that some genes are over expressed and there is also sign of inflammation.

The same goes for lymphedema. Analyses of the fat show that there are certain genes that are over expressed and these genes are responsible for fat formation."

In Germany it is 'not done' to do a surgical operation in an edematous limb. Didn't it seem a high risk to perform this kind of operation? Didn't you fear erysipelas to occur? How can you reduce this risk?
"I'm not afraid of erysipelas, because the surgery is performed under sterile conditions. None of our patients have had any infection in conjunction with the surgery. We have shown that the incidence of erysipelas decrease from 0,4 to 0,1 after surgery. Patients receive antibiotics for 2 weeks after surgery. We have no restrictions for the patients after surgery except when they work in the garden. They must wear protective gloves for example while working in the garden or attending to roses."

In addition to this: Would you advice major surgery like a DIEP-flap[1] breast reconstruction, tattoo or acupuncture in patients with (arm) lymphedema?
"If the lymphedema is under control, why not – because adequate wearing of a compression garments keeps the edema away. A DIEP-flap is an excellent method for breast reconstruction. And when the patient wears a garment, she can climb the Mount Everest if she wants to. I do not give any restrictions whatsoever except when gardening. They can swim, run, they can play golf, tennis, whatever they like, because they have their safety belt on, their garment.

[1] Deep Inferior Epigastric Perforator flap.
Recently published: S. de Hoop, What does breast reconstruction to lymphedema? Oedeminus, March 2008, year 11, number one. This article written by a physiotherapist describes an augmentation of lymphedema in one patient nine months after a breast reconstruction with silicones compared to the situation before operation.

The most important thing is to do what you want to do. If you want a tattoo, you should not do it in the lymphedematous arm or on radiated skin. I would not recommend tattoos at all. Not even if you have no lymphedema.
I would not use acupuncture in the lymphedematous region either. But you can do it on the other side of the body. I would avoid putting needles in a lymphedematous arm in a non-emergency situation."

It is known that lymphedema does occur in the operated breast. Is this kind of edema also operable?
"Lymphedema of the breast is rather rare. Some cancers are inflammatory and breasts or armpits are often irradiated. These women often get a smaller, harder breast due to increased fibrosis induced by the radiation. I doubt liposuction can be made in such a hard breast. Also it is difficult to get adequate compression on a breast. Maybe a breast reduction is possible, but radiated tissue heals badly and blood circulation is decreased, thus leading to increased risk for post-operative complications."

Is pitting lymphedema operable? If not, why not? What is the most important condition of lymphedema for a successful liposuction?
"Strictly liposuction can be performed on a pitting lymphedema. Pitting indicates excess lymph. Why remove lymph with liposuction when Controlled Compression Therapy (CCT) and Complex Decongestive Treatment (CDT) can remove it as effectively. So, we don't operate on pitting lymphedema, we just remove fat. You have to get rid of the pitting first before you can operate and sometimes patients are happy with the reduction with just CCT or CDT. If the patient is happy, you should not proceed with surgery. If the patient still wants a further reduction, liposuction can be done. Pitting means that there is accumulated fluid/lymph. CCT and CDT can easily remove the fluid. When there is no fluid/lymph then you have a non-pitting swelling. You also know that the excess volume is newly formed adipose tissue, which cannot be removed with CCT or CDT. The most important condition is a non-pitting lymphedema."

Do you also perform liposuction for leg lymphedema with the same good results in the long term?
"We have operated on legs for the past 5 years, with the same good results. It is more difficult though as surgery takes longer time. Also the circumference of a leg is larger than that of an arm and according to Laplace's law it is more difficult to get enough compression so we often add 1-2 compression garments; for example flat knitted leg long CCL 3 + round knitted CCL 2 + knee long flat knitted CCL 2 These extra garments are removed during night."

Do you also perform liposculpture operations on lip edema patients? If so, does this differ from the operations on lymphedema patients? Or is this kind of surgery more like a common cosmetic operation?
"There's no difference between liposuction and liposculpture. Sculpture is just a word to make it sound nicer, often in order to attract more customers for esthetic surgery. I did a liposuction on a lip edema patient once. In this particular case the patient was not overweight. Lip edema patients usually show normal lymph transport when assessed by lymph scintigraphy, but in those patients who are morbidly overweight one can see an altered lymph transport probably due to that these patients have difficulties to walk or cannot walk at all, thus not activating the muscle pump. If you stand upright for several hours any person will have some pitting in the legs.

Liposuction for lip edema differs from a technical point. With an aggressive liposuction on a person with normal lymph transport (including patients with lip edema) you will have swollen legs post-operatively for a long time, because the surgery affects the lymph vessels negatively. Usually the swelling disappears, but sometimes it does not. In a lymphedema patient I can't make it worse because there is no flow. But in a person with normal lymphatic you might get a pitting edema that can possibly be permanent."

In Germany patients and surgeons are enthusiastic about the results of these operations. Isn't it so that these results are also temporary unless people do minimize the amount of fat and carbohydrates in their food for the rest of their lives?
"Many of the patients that are given the diagnosis of lip edema are just obese and do not show the typical features of lip edema and some are patients with adipositas dolorosa (Dercum's disease). Of course surgeons are enthusiastic because they earn a lot of money. Patients are enthusiastic because of improved looks if complications do not occur. I would advise against liposuction of the lower extremities lip edema in patients with lip edema, especially if they are overweight. A pre-operative lymph-scintigraphy is recommended to evaluate the lymph transport before a decision is made. Lymph-scintigraphy studies have shown a significant decrease in the lymph transport after liposuction of the legs in normal patients."

What is in your opinion the most important progress that has been made in the last 5 years in the knowledge acquired about lymphedema and its treatment?
"What I saw when I operated my first patient was the excess of fat. Finally this clinical observation of excess of fat in patients with lymphedema has been recognized by the lymphologists. At a meeting in the United States, when I gave a talk, a well-known colleague stood up and said: "Adipose tissue in lymphedema, I have never seen it. That must be something peculiar for Swedes." When I talked at my first meeting of the International Congress of Lymphology (ICL) in Madrid in 1997, nobody talked about adipose tissue. Nobody had shown complete reduction of chronic massive arm lymphedema before that meeting. One reaction was that the results would never last. We now know that the results do last during the observation period of 15 years. This is of course important, it took me 10 years to convince lymphologists about the existence of excess adipose tissue in patients with lymphedema. And at the latest ICL-meeting in Brazil in (2007) I chaired a session just entitled to adipose tissue and lymphedema. There will be another session at the next meeting in 2009 in Sydney and of course in Malmö, Sweden in 2011."

What is our biggest challenge in the years to come? Are there spectacular results to be expected in the near future?
"We have spectacular results already with our operations. We know that some inflammatory diseases makes fat occur. We have found that some genes of the adipose tissue are 'turned on' in lymphedema patients. The biggest challenge in the future would be to treat lymphedema with a medicine to stop the build-up of adipose tissue."

Did you learn anything new about the edema treatment here during your stay?
"Just like in Sweden the co-operation between doctors and therapists is very informal. I found that all team members worked very well together and listened to each other. This is very important and is a pre-requisite for further development. All team members learn from each other. I learn from my therapists, and they learn from me.
The team Nij Smellinghe has been in Sweden three times and I am here for the first time and I can tell now that the work that is done here is excellent and the outcome of treatment parallels our results in Malmö. And we still have ideas to make it even better."

Is there anything else that you want to point out?
“There need be no tension between those who favor conservative treatment and proponents of liposuction. Accumulated lymph should be removed using the well-documented conservative regimens until minimal or no pitting is seen. If there is still a significant excess volume, this can be removed by the use of liposuction. Continuous wearing of a compression garment prevents recurrence.
Some therapists regard it normal for the patient to have maintenance treatment because of recurrence of the pitting. Recurrence of pitting after the initial treatment must be regarded as a failure of the therapist. The reason for recurrence is that the patient did not get enough compression garments or that they are worn out, or that the patient does not wear garments continuously (24 hours a day). We have shown that if you measure the patients’ arm volumes once a month after the initial treatment and when you resister an increase in excess volume, then it is time to prescribe new garments. This means typically that a 70-years-old woman may need two garments every 6 months. On the other hand, another patient, say around 25 years, may need 2 garments every two months. We have male patients with arm lymphedema that need two garments a month. Compression treatment with a garment must be individualized – just as a patient with diabetes needs to find out how many units of insulin she or he may need. If you get too little insulin you end up in the hospital…. When we have found the right number of garments that prevents recurrence – then we see the patient once a year only. We then prescribe all the garments for the coming year. We are happy that we can prescribe the exact amount of garments that each patient needs. The patient pays nothing for the garments; this is included in the health system paid by taxes. If the insurance or health systems do not pay for garments then we have a problem. Some patients cannot afford to buy the right number of garments and then treatment is of no good.”

Do you have a special message or advice for our readers on a wider scale?
”Innovation is to be able to be creative, to look outside the box. If I had read what was written about lymphedema and all do’s and don’ts, I would never have had the courage to operate on these patients because everybody said: “Never do surgery on a lymph edematous limb.” I made a clinical observation and had an open mind, open eyes and didn’t take any old things with me in my ‘luggage’. I had a new ‘suitcase’ and I opened my eyes and I saw things that everybody could see but didn’t want to see. And now we are here.”