

THE WINSTON CHURCHILL MEMORIAL TRUST OF
AUSTRALIA

Report by Assoc. Professor Sankar N. Sinha

To study chronic wound management in USA and UK

Introduction

The treatment of chronic wounds, of which chronic leg ulcers form the majority, is expensive and time-consuming. Internationally, the prevalence of leg ulcers ranges from 0.11 to 1% of the population. In Australia, the prevalence is estimated to be 1.1 per 1000 of the population, most of whom are older than 60 years¹.

The Leg Ulcer Clinic at the Repatriation General Hospital (which later relocated to the Royal Hobart Hospital) and the private Wound Care Clinic at the St Johns Hospital, in Hobart were established in 1994 under my leadership and were the first of their kind in Tasmania.

It has been documented that by establishing the Leg Ulcer Clinic at the RHH, not only have an annual savings of approximately \$800,000 been achieved², but there has also been a substantial improvement in the quality of life of patients with leg ulcers³.

The 2001 Churchill Fellowship, awarded to me to study chronic wound management services overseas, mainly in the USA, therefore provided me with a great opportunity to expand my knowledge in this area.

I am grateful to the Winston Churchill Fellowship Trust for this award.

Programme

1. Visit to the Vein Institute at the Scripps Memorial Hospital, La Jolla, California to meet Professor John Bergan, Professor of Surgery at the University of California, San Diego School of Medicine.
2. Visit to the Hermann Center for Hyperbaric Medicine, Wound Healing, Lymphedema Management at the Texas Medical Center. The director of the unit is Assoc. Professor Caroline Fife of The University of Texas Health Science Center, Houston, Texas.
3. Visit to the Southeast Texas Center for Wound Care and Hyperbaric Medicine in Conroe. Meeting with Dr Robert Warriner, Medical Director and Sherrill White, Administrator of the Unit.
4. Visit to meet Professor Jon Mader, Chief, Division of Marine Medicine at the University of Texas Medical Branch, Galveston, Texas.
5. Visit to meet Prof. Adelaide Hebert, Professor of Dermatology at the Dermatology clinic (Travis Street) and later on at the M.D. Anderson Hospital.
6. Visit to the Wound Healing Research Unit, University of Wales College of Medicine, Cardiff, UK.

The purpose of my first stop in San Diego to meet with Prof. Bergan was to observe the management of chronic venous diseases, which causes chronic leg ulcers. Prof. Bergan is one of the leading international experts

in this area and has written many books and articles. He and I discussed how the Vein Institute operated, his main research interests and the rationale and current trends of treatment of varicose veins. He did emphasise that even though the recently available VNUS occlusion with the use of bipolar diathermy electrode is very effective, its high cost may preclude it from being used more widely in many centers.

Incidentally, he is a close friend of Dr. John Large, now a retired surgeon in Hobart, who performed many varicose vein operations in Tasmania using his Multiple Stab Avulsions technique.

Research under Prof Bergan's guidance has found that venous hypertension leads to leucocyte activation and adhesion to the endothelial lining of the venous lumen and valve cusps, causing damage by the release of toxic superoxide molecules. It is expected that further research in this direction will help formulate drugs for reversal or the prevention of damage from chronic venous hypertension.

Prof Bergan also took time to explain his distinctive operative technique of varicose vein surgery to me and I had the opportunity to observe this in practice in the operating theatre with him.

I also, had the privilege to observe his interviews with patients and to see his technique of sclerosant injections in the veins for treatment of minor superficial varices in the legs. He does not use prolonged compression bandaging after the injections, but uses a support bandage only for 24 hours.

My next and indeed, major port of call was the Hermann Hospital, at the Texas Medical Center in Houston.

Dr Caroline Fife, the Director of the Hermann Center for Hyperbaric Medicine, Wound Healing, Lymphedema Management provided me the opportunity to be involved in the clinical activities of the unit. I observed as well as actively contributed to the management of various types of chronic wounds both in the outpatients and in-patients at the Hermann Hospital.

The Wound Healing Unit runs everyday between Monday to Friday with emergency staff available on-call during weekends and holidays. The unit has two consultants (Dr Fife & Dr Latisha Smith), one registrar (Dr Eric Maus), one Physician Assistant (Mr Tom Sutton), four registered nurses (Karen, Ellen, Marylou, and John), three office assistants (Kelly, Monica, and Paula), two assistants to deal with patients billing and health insurances (Lucy and Anna) and one unit manager (Geoff). Besides this the unit has technicians for hyperbaric oxygen therapy and lymphoedema therapists. The unit handles about 300 patients of chronic wounds per month, which includes 60 to 75 new patients. The dermatology consultation is available on-site by Prof Ebert, as and when needed. Dr Fife also has access to a cardiologist, who does stenting and angioplasties

on patients with ischaemic ulcers. Hyperbaric oxygen therapy is used in approximately 10% of patients with chronic wounds.

The pattern of chronic wounds referred to the clinic is broadly similar to what we see in Tasmania, namely, venous and arterial leg ulcers, diabetic foot ulcer, pressure sores and occasional malignant ulcers. I saw several sickle-cell anaemia patients of Afro-American origin with leg ulcers. These ulcers do not have any special clinical features except for the fact that they are extremely painful. I also noted a few leg ulcers, which were thought to be vasculitic ulcers. According to Prof. Ebert, these ulcers are very difficult to diagnose and require deep biopsies and review by a specialist dermatopathologist. Once diagnosed, these ulcers are treated with Sulphasalazine or Mesasal. If this does not produce desired results then Prof. Ebert treats them with intralesional injection of triamcinolone acetate (Kenalog) with good outcome. I also learnt about a special associated feature in chronic leg ulcers, called 'atrophie blanche' and I became so interested that I did some quick research on this topic with assistance from Dr Fife and wrote a review article for publication.

Active surgical debridement with a small sharp curette after anaesthetizing the wound with EMLA cream is performed almost routinely. Dr Fife found this to be useful in accelerating wound healing.

The Hermann Wound Healing Center was involved in many multicenter trials and as a result two products are currently approved by the FDA for use in chronic wounds. One of them is a platelet-derived growth factor called 'Regranex' and the other one is a semi synthetic skin product called 'Apligraf'. I saw several follow up cases treated by Apligraf and my impression was that it has got a definite role in treating 'hard to heal' ulcers. But it must be used judiciously, as it is prohibitively expensive; one application costs about \$1000. I also saw Regranex being used, which is a product available as an ointment and needs daily application (dressings are best changed after 12 hours). This product is also expensive, but has been found to be very effective in treating diabetic foot ulcers-which often leads to amputations if not treated appropriately.

I saw the frequent use of VAC therapy in cavity wounds with good results. Unlike our situation in Australia, the health-funds allow the use of VAC instrument at home by the patients, resulting in substantial cost-savings.

While I was there, I met Chris Manders, a representative of Promethean Life Sciences, Inc., which has just introduced a product called 'GammaGraft'. This is an irradiated human skin allograft and may be stored at room temperature with a shelf life of up to a year. Its main applications are as a temporary dressing for treating burns and chronic wounds. I discussed this with Dr Fife and suggested she use this product in chronic recalcitrant leg ulcers with clean granulations with the aim of

stimulating the 'senescent cells' to assist in healing. I started this project with Dr Maus and by the time I left the Unit, there were 4 patients on whom this product had been tried. I have plan to liaise with Dr Maus to follow up the results and I intend to use this GammaGraft in Hobart with approval from Therapeutic Goods Administration. During my stay, I had the opportunity to discuss different aspects of wound management with staff members everyday and to share my experience with them. I was given unlimited access to review the medical records, which I found were excellent in their detail. I also watched a few very informative videotapes of earlier meetings on wound management held in San Antonio, Texas.

My visit to the Wound Healing Research Unit, University of Wales College of Medicine in Cardiff was an afterthought and I included this in my tour not only to observe the activity of this unit but also to visit Sir Winston's home in Chartwell, Kent.

At the Wound Healing Research Unit (WHRU) in Cardiff I visited the Diabetic Foot clinic at the Richmond House in Royal Gwent Hospital and the Wound Clinic in St Woolos Hospital, Newport and later on the WHRU at the University Hospital in Cardiff.

This unit is actively engaged in clinical, community and laboratory based research programme on mechanisms and treatments for acute and chronic wound healing. They also provide wound care training for healthcare professionals.

The Units staff of 35 includes hospital clinic and community nursing teams, Clinical Research Fellows and a laboratory based research group including postdoctoral scientists, graduate and undergraduate students. I had the opportunity to meet some of the Research Fellows, engaged in tissue engineering and microbiological aspects of wound healing. I also gained an insight about the various educational programmes of the Unit.

The visit to Chartwell was the final part of my Churchill Fellowship tour and it was indeed a memorable journey. We arrived at the Edenbridge station from London. I was told earlier that Chartwell is only a short distance from Edenbridge and taxis are available. But when my wife and I arrived there, I found a desolate railway station with no taxis in sight. Fortunately, as I was talking to the owner of the only nearby corner shop, a customer overheard our conversation and kindly offered us the lift to Chartwell. The estate of Chartwell is very impressive-the scenic beauty is enchanting and a tour of the Churchill's house is a journey into the history. I was glad that I did include this in my itinerary.

Conclusions

1. Management of chronic wounds is a challenging issue globally and requires the services of a dedicated, well-structured unit with appropriately trained medical and nursing staff.
2. Multilayer compression bandage is very effective in the treatment of chronic venous leg ulcers and selected cases of ischaemic ulcers.
3. Regranex (platelet derived growth factor) is useful in treating chronic wounds.
4. VAC-therapy should be used more frequently with arrangements for this to be available in home of the patient.
5. Active surgical debridement with the help of EMLA cream is useful in accelerating wound healing.

I intend to disseminate this knowledge through articles in the newsletter of the Tasmanian Wound Care Association, and by arranging several small group discussions at the RHH, St Johns, HPH and Calvary Hospitals. I also plan to give lectures on this topic at the RACGP, Medical Faculty and Department of Surgery meetings.

Recommendations

1. The assistance from an interested dermatologist, dermatopathologist and a vascular surgeon is highly recommended to facilitate treatment of chronic wounds and leg ulcers.
2. Detail documentation of every patient, photograph of wounds with measurements at every visit, is essential to measure the outcome of different methods of treatment. This needs some initial investment both in terms of equipment and staff education.
3. The wound care units should be provided with mechanisms to access new products for evaluation, as and when they are available (e.g., Apligraf, Regranex, GammaGraft etc).

References:

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