

The Evolution Of Treating Venous Disease In Australia Over The Last Fifty Years

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INTRODUCTION

This article had been written with a view to fulfilling two aims. Firstly, for those of us interested in treating venous disease, to document the evolution of the treatment of venous disease in Australia over the last fifty years. Secondly, to document some of the earlier treatments and to see if we can learn from the techniques that have been used in the past. The period in question can be divided into three sections (1). The pre Fegan era ranging from 1950 to the mid 1960s (2). The Fegan era extending from the mid 1960s towards the end of the 1970s (3). The post Fegan era consisting of the 1980s and 1990s.

THE PRE FEGAN ERA 1950 TO ABOUT 1965

This was the period where treating venous disease and varicose veins was principally the domain of the general surgeon. Both overseas and in Australia, the results of surgical treatment were poor, and probably the reasons for these poor results are best summarised by Linton, in his foreword in Dodd & Cockett's landmark book "The Pathology and Surgery of the Veins of the Lower Limb" (1). Linton blamed poor operative results due to failure of the profession to understand basic anatomy and physiology, and the fact that in most clinics the operations were carried out by the youngest and least experienced members of the surgical team because the senior surgeons could not be bothered with the tedious time consuming type of operative procedures necessary to gain satisfactory results. Often the saphenofemoral ligation was too low and well below the saphenofemoral junction resulting in a very high rate of groin recurrence.

Stripping of the long and short saphenous vein was introduced by Mayo in 1906 (2) this being done by a rigid external stripper. This was modified by Babcock in 1907 (3) who described a rigid metal stripper with an olive tip on one end and a bulbous replaceable olive. It was not until 1954 that Myers introduced the flexible intraluminal stripper (4).

In Australia by the early 1950s the flexible intraluminal stripper had become popular, however low ligation of the long saphenous vein was still done very frequently, and consequently groin recurrences were very common. Tributaries of the long saphenous vein were taken out through multiple long incisions. Patients were often kept in hospital at bed rest for up to seven days or so, and when they were mobilised, due to the multiple large scars in their leg, were not very mobile in the first two or three weeks. Consequently there was a significant deep vein thrombosis and pulmonary embolism complication rate. Usually the short saphenous vein was stripped by introducing the stripper behind the lateral malleolus and taking the top out through a small incision with no attempt to ligate the saphenopopliteal recurrence rate. Due to stripping of the long and short saphenous veins from the ankle, there was a relatively high rate of saphenous and sural nerve neuralgia, which often was very prolonged and often very distressing to the patient.

Another method of dealing with the saphenous veins was the retrograde injection of large volumes of Ethamolin down the distal part of the divided long or short saphenous vein. This method was in fact quite popular in Sydney in the 1950s, and in a personal communication Dr Charles Wickham-Lawes, a surgeon who ran a varicose vein clinic at Royal North Shore Hospital, claimed the he had good results from this method himself and had a low complication rate. He did volunteer that he was aware of several cases where other surgeons had inadvertently divided the femoral artery and retrogradely injected Ethamolin with disastrous results (5).

Finally, in this period, there was a vogue to do the multiple ligation of incompetent perforators through long incisions in the lower half of the calf - the Linton operation (6) and the Cockett operation (7). These operations were also sometimes associated with ligation of deep veins. They were usually advocated for recurrent ulceration and chronic venous insufficiency. The problem with these operations was that the wounds were extremely painful and slow to heal, with infection often setting in. The patient would be immobilised in bed and hospitalised for a reasonably prolonged period of time.

Despite the fact that most varicose vein and venous conditions were extremely poorly treated, both in Australia as well as the rest of the world, in Australia there were surgeons doing innovative work which would lay the groundwork for subsequent investigation and treatment of venous disease in Australia. Amongst these were Professor John Ludbrook, whose landmark studies on venous physiology, the measurement of venous pressures, and work on the musculo-venous pump of the leg and the origin of primary great saphenous varicose, still stands today as important research into venous physiology (8,9). During this time Peter Halliday had returned to join John Loewenthal's developing vascular unit at Royal Prince Alfred Hospital in the late 1950s and apart from doing arterial surgery, tackled venous surgery on a specific basis by doing a large number of investigative venograms. Although by the time he retired he had personally done 2,200 venograms (10) - the results of the first 155 patients' venograms were published in 1967 (11). On the basis of this venographic finding, he did meticulous surgery to correct the sites of venous reflux.

In this period, John Mullany of Melbourne established a large surgical vein practice based on meticulous clinical diagnosis and stab avulsion techniques, which have stood the test of time. In Adelaide, Mark Sheppard worked on the anatomy of the popliteal fossa and the correct management of sapheno-popliteal incompetence (12).

THE FEGAN ERA

Against the background of poorly performed surgery for varicose veins associated with prolonged, painful hospital stay and multiple large scars with high recurrence rates, the stage was set for George Fegan of the Rotunda Hospital, Dublin, to promote a system of treatment of all varicose vein cases by injecting the incompetent perforating veins associated with continuous and uninterrupted bandaging for six weeks. The sclerosant that he used was Sodium Tetradecyl Sulphate (13).

In the 1960s there was a huge move to compression sclerotherapy and several Australian trainee surgeons studying in the United Kingdom went over to Ireland to study Fegan's technique. On return to Australia many of these registrars started practising compression sclerotherapy in Australia in the 1960s. Subsequent to the publication of an article on compression sclerotherapy by Conrad in the Medical Journal of Australia in 1967 (14) and letters in the Medical Journal of Australia about compression sclerotherapy for the treatment of varicose veins, a group of surgeons practising sclerotherapy started correspondence amongst themselves and visiting each others clinics. These surgeons, who were to found the Australian and New Zealand Society of Phlebology, consisted of William Campbell in Brisbane, Peter Conrad in Sydney, John Royle in Melbourne, Mark Sheppard in Adelaide, John Large in Hobart, and John Heslop in Dunedin, New Zealand. The Society was founded in 1975 and the inaugural meeting was held in Melbourne at the Windsor Hotel in May 1976, in conjunction with the annual scientific meeting of the Royal Australasian College of Surgeons, at which meeting there was a session on sclerotherapy with the guest speaker being Professor Fegan, followed by various Australian experts. Immediately following the Melbourne meeting, the first scientific meeting of the newly formed Australian and New Zealand Society of Phlebology was held in Hobart with, again, Professor Fegan being the first guest speaker.

During this period and extending into the early 1980s, there remained enormous enthusiasm for compression sclerotherapy as being the treatment of choice for all types of varicose veins

including those associated with long and short saphenous incompetence. Its popularity, however, declined in the early 1980s, due to the realisation by most of the surgeons practising sclerotherapy, and reinforced by Hobbs 1974 (15) and 1978 (16), that those cases of varicose veins associated with long and/or short saphenous incompetence had a very high recurrence rate if treated by sclerotherapy alone. Both in Australia and overseas the pendulum started swinging back to surgery as primary treatment for varicose veins associated with long and short saphenous incompetence, and compression sclerotherapy was relegated to be an adjunct, treating veins not associated with long and short saphenous incompetence, or as a follow up after operation.

The late 1970s and early 1980s were a period of consolidation for the Australian and New Zealand Society of Phlebology, with several meetings with invited overseas speakers, such as John Bergan, John Hobbs, Andrew Nicolaides, Hugo Partsch, Jack Cranley, Vijay Kakkar, Kevin Burnand, and Stanley Rivlin. These speakers brought a lot of new ideas to our shores, and in 1986, Australia was formally admitted as a member nation of the International Union of Phlebology, represented by the Australian and New Zealand Society of Phlebology. It is also important to give credit to the vascular unit at St Mary's Hospital, London, where many Australians, from Ken Myers (1964, 1965) to Mark Malouf (1985), received training in diagnosing and treating venous disease under the guidance of Andrew Nicolaides and John Hobbs.

THE POST FEGAN PERIOD 1980-2000

This period has produced enormous advancement in the scientific treatment of venous disease in Australia as well as the rest of the world. We have become much more part of international thought on Phlebology enhanced by more frequent meetings in Australia, with many international speakers of note. Many speakers from USA, Canada, Britain, and France, have graced our meetings. Those prominent amongst these have been Mitchel Goldman, Michael Zummo, Louis Grondin, John Scurr, and Andre Cornu-Thenard. With the advancement of Phlebology in the USA, there have been a large number of Australian doctors going to overseas international meetings, bringing new ideas and techniques back to Australia. This cumulated in the 13th World Congress of the International Union of Phlebology being held in Sydney in September 1998. Also reflecting what appears to be a worldwide trend, the treatment of venous disease no longer is the domain of surgeons, as family physicians and dermatologists have developed an interest in sclerotherapy. This trend saw the formation of a second society interest in venous disease, the Sclerotherapy Society of Australia, being formed in the early 1990s.

The advances in this period were many and can be summarised as follows: -

More accurate non-invasive investigations have been introduced. In the first instance, the continuous wave Doppler flow meter, both fixed and hand held, were used in an effort to diagnose sites of incompetence both in main superficial veins and perforators. This was first described in Australia by Large (17). The use of Doppler by itself, however, was soon superseded by the use of duplex scanning and this was described as early as 1983 by Myers (18). The importance of duplex scanning in recurrent varicose veins was emphasised by Richardson and Beckwith (19). The important topic of diagnosing recurrent varicose veins by duplex imaging was also described by Thibault and Lewis (20).

Important papers on a variety of venous topics have been published by Royle, an example of his meticulous research was duplex ultrasound study of recurrent varicose veins, following high ligation of the long saphenous vein (21). Also, McMullin, prior to her return to Australia, did important research as part of the Middlesex group. An important paper published by the group was one comparing the various investigative modalities in assessing venous insufficiency (22).

Finally, duplex ultrasound has been used as a research tool. William Campbell showed, by pre and post operative duplex studies, that curing primary long or short saphenous reflux by high

ligation and stripping often resulted in the disappearance of previously found perforating vein incompetence, without the need to separately ligate the incompetent perforator(s) (23).

Ultrasound guided sclerotherapy (Echosclerotherapy) is a technique introduced to Australia over the last ten years. It is a technique now practised mainly by non-surgical phlebologists as an alternative to some cases of long saphenous and short saphenous disease, and, more recently, for localising and injecting incompetent perforating veins. The principles of treatment have been well summarised by Parsi (24).

In 1991 a new sclerosant Aethoxysklerol (Polidocanol) 3%, 1% and 0.5%, was introduced to Australia under trial conditions. The Australian Polidocanol Study was commenced and the three year results of the study were reported by Malouf, et al (25), showing that in a follow up of some 35,000 legs treated by Polidocanol, the sclerosant was relatively painless and was very safe, effective, mild and with a low rate of complications. It is undergoing its final registration processes in Australia and the USA and should be fully registered by about the end of the year 2000.

CONCLUSION

WHAT HAVE WE LEARNT OVER THE LAST FIFTY YEARS?

It has been a very interesting exercise to journey over the last fifty years of vein treatment, with the assistance of colleagues who remember the early days. Surgery in the early part of this period was performed with big cuts involving a prolonged hospital stay and associated with a slow, painful convalescence. Although there were few scientific studies written on the incidence of complications, anecdotal evidence indicates that there was a relatively high incidence of wound infections and deep vein thrombosis. There were very few surgeons who were interested in treating venous disease. From this state, we have arrived at the situation in the year 2000, where phlebology as a specialty has come of age. It is no longer the province of the surgeons alone, although there are now a large number of both vascular and general surgeons who have a specific interest in treating venous disease. There are now a large number of family physicians that treat venous disease, mainly by sclerotherapy. Associated with this are ultrasonographers, radiologists and researchers who assist in the investigations.

There is now a tendency to investigate and scientifically assess each case of venous disease before treatment. Surgery is now performed with small incisions, and branches tend to be avulsed mainly by hook phlebectomy through three to six millimetre cosmetic incisions. Stripping of the long saphenous vein tends to be only just below the knee and often by invagination techniques. Similarly, short saphenous incompetence is by stripping to mid calf only. Large incisions used in Cockett's and Linton's operations have been virtually abandoned and perforators are accurately localised by Duplex scans and ligated through small incisions. Some are ablated through subfascial endoscopic means (26), although this is still a very specialised form of treatment. Micro sclerotherapy for small venules and spider veins, a technique totally unknown fifty years ago, is now widely and safely practised.

In Australia we now have two societies of phlebology and at least one to two meetings per year devoted to vein treatment. There is now the new Journal of Phlebology. It is to be hoped that the next fifty years will bring similar spectacular progress in the treatment of venous disease.

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