

The Medicinal Use of Leeches in Malta

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The medical practice based on the Greek doctrine of the four humors considered that disease was due to alterations in the composition of these humors, and therapy was therefore based on attempting to restore the balance. Bleeding was the first resort in the treatment of a large majority of diseases – a therapeutic measure that persisted throughout the centuries. Bloodletting generally took the form of using a knife or lancet to open a vein, a procedure referred to as venesection or phlebotomy. A gentler and more desirable form of bleeding was to put a leech on the affected part and to let the animal engorge itself with the bad blood thought to dwell below the point of application. Leeches have been used medically for centuries; in Europe the use of leeches to drain off blood reached its height of popularity in the 19th century.

The practice of bloodletting in the Maltese Islands dates at least to about the 2nd century AD. A tomb-slab from the late Roman/Palaeo-Christian period depicts a set of surgical instruments that include two Roman cupping vessels¹. Only 93 kilometers away from Sicily and 290 km from Northern Africa, the Maltese archipelago with its central position in the Mediterranean was an important meeting place for the various cultures that dominated the region. Malta's location at the crossroads of culture is reflected by the medical practices in use throughout the centuries. The practice of venesection in Malta persisted through the ages and during the medieval period (1539), the procedure was being carried out by the barber-surgeons against payment of one unza². The barber-surgeons or barberotti remained responsible for venesection well into the 19th century and were only removed from the list of medical practitioners in 1921³. The gentler form of bloodletting through the use of leeches was also practiced in Malta.

Sixteenth to eighteenth centuries

The first traced reference to the use of leeches in relation to the Maltese Islands dates to the late 16th century. Dr. Pietro Parisi from Trapani in Sicily, sent to Malta by the Viceroy of Sicily, left a detailed eyewitness description of the events that occurred during the Plague epidemic that ravaged the Maltese Islands during 1592-93. In his account, Parisi described the prevalent treatment for the disease, treatment that had undergone no change since the medieval period. Bloodletting was carried out in cases of plague in the belief that the procedure relieved the body of its noxious humors. Parisi advocated the use of leeches in conjunction with venesection, allowing the latter procedure to be dispensed with in timid patients, such as women and children, stating that "At times over the site of phlebotomy were placed three, or four leeches; so that they could suck out that virulent blood. And this should be performed on children & women because of their timidness, & not to feel the pain of the lancet, in such instances one may apply the said leeches without the primary venesection, once these detach themselves it is necessary to wash the site with tepid water, to ensure that no immediate ailment occurs to the bites, & allow the blood to ooze"⁴.

The earliest pharmaceutical lists known from Malta date to the sixteenth century. These two lists exhibit a representative cross-section of the materia medica available in Malta in the latter decades of the century. The earlier list (1546) catalogues compounded preparations, whereas the latter one (1592) is a directory of simple constituent drugs used in the preparations. While both lists fail to confirm the use of leeches in sixteenth century Malta, they serve to illustrate that Maltese medical practice was very much in the mainstream of the Arabo-Hellenic medical tradition flourishing on the continent at the time. The mention of imported elements in the lists confirms the close trade contacts Malta had with Sicily^{5,6}. The specific use in 1686 of leeches or "Sanguisughe" is recorded in a seventeenth century pharmaceutical register which lists the medicaments supplied to individuals belonging to the Order of Jesuits resident in the capital city of Malta during the period 1683-1713⁷. The medical application of leeches, in addition to venesection and cupping, is also recorded in the 'Commissari degli spogli' applications of the mid-eighteenth century. Any creditors of a deceased Knight of the Order of St. John were obliged to apply for their dues to the Order's 'Commissari degli spogli' to be remunerated from the knight's effects or 'spogli' at the time of his death⁸. The leeches were generally applied by the barber-surgeon. The 1725 regulations of the main hospital in Malta, the Sacra Infermeria, define the duties of the barber-surgeon or phlebotomist to include the use of leeches⁹. Leeches applied to the temple have also been recorded in the eighteenth century as useful to prevent or reduce the inflammatory reaction that occurred in the eyeball following firearm injuries to the orbital region¹⁰.

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Nineteenth century

The use of leeches became increasingly fashionable in Europe during the nineteenth century. The situation was similar in Malta, where medical practice shifted from the French school to the British school. In 1816, the British physician W. Burnett, practicing in the British Naval Mediterranean Station, described the employment of leeches when less profuse bleeding was required in the treatment of cases of Mediterranean fever. From three to twelve leeches were applied to the temples in cases of severe headache, or to the epigastric region when gastric symptoms became troublesome. To ensure a continuous flow of blood, a cupping glass was applied over the orifices made by the leeches. In this way up to twelve ounces of blood could be procured¹¹. Medical practitioners working in Malta similarly reported their use of leeches in specific medical conditions. When the invalid Sir Walter Scott reached Malta in 1831, he exhibited symptoms of an impending stroke. He was attended by Dr. John Davy, then a military doctor stationed in Malta, who prescribed the application of leeches to Scott's head¹². In 1842, case presentations describing the management of puerperal sepsis record the use of leeches in Maltese patients in addition to formal venesection. In the first case leeches were applied on two occasions – 15 to the hypogastrium and, five days later, 24 to the abdominal wall. In the second case leeches were applied to the hypogastrium and right iliac fossa on four occasions, the number of leeches applied ranging from 18 to 50 animals¹³. Another recorded use of leeches was described in 1843. This was in a case of abdominal pain caused by intra-abdominal bleeding. This was managed by the application of 24 leeches to the painful site¹⁴. The use of bloodletting with the application of leeches to the temples in cases of puerperal convulsions was discussed in the Maltese medical press in 1871. While the prevalent British school of medical thought believed that venesection and the application of leeches in cases of eclampsia was without benefit and was likely to augment the convulsion, the author discusses the possible role of the procedure in cases when the mother is plethoric especially in the presence of pulmonary oedema¹⁵.

In 1840 the Civil Hospitals in the Maltese Islands were using 2600 leeches per month. To control the excessive consumption of these animals, instructions were issued to the medical officers to resort more frequently to cupping, as was generally practiced in the British Military Hospital^{16,17,A}. The situation was apparently similar in the British Naval Hospital. In his review of cases treated at Bighi Naval Hospital during 1842-44, T. Spencer Wells apparently generally resorted to bleeding by cupping in his general management. He however did resort to the application of leeches in at least six cases, generally in the management of inflammation and associated swelling and pain. The cases included: acute pneumothorax, purulent pericarditis, perforating injury of the knee joint, spinal injury causing displacement of dorsal vertebrae, ascending middle ear infection, and tubercular infection of the arm^{18,19}. In 1851, Santo Spirito Hospital, with an average population of twenty-five patients, was using 300 leeches per month¹⁷. In June 1855, directions were issued to the employees at the Central Hospital with a view of preserving the leeches for more than one application. The practice of keeping them in wood ash was discontinued. They were instead washed with fresh water after falling off from the patient, and a pinch of salt placed onto their mouths^{17,20,B}.

Instructions about the application and the post-use care of

leeches were similarly given by Prof. S. L. Pisani, Professor of Midwifery and Gynaecology at the University of Malta and Head of the Clinical Department of the main civil hospital in Malta, in his lectures to midwives published (in Maltese) in 1883. The lectures were originally delivered about ten years previously. In his instructions, Pisani advises that the site of application should be clean and odourless. The leeches were to be removed from their container, dried in a cloth and applied to the indicated site. This was likely to be the abdomen, while the number to be applied was generally about two dozen. If the number of leeches to be applied was numerous, they were to be applied four at a time on each side of the abdomen. After engorging themselves and releasing from the patient, they were placed in a container containing wood ash and left until they digested the engorged blood²¹. Dr. J.G. Galizia, lecturer in the Nursing School, gave similar instructions in his lecture notes to nurses published in 1904. The nurses were advised that the site where the leeches were to be applied should be first washed with soap and warm water, and then dried. The leeches were to be first washed and then dried with a soft towel. The animals were generally applied directly to the skin. However, a better method was to apply them by the simple expedient of overturning the jar containing the animals and some water over the skin. When this did not work, the skin could be spread with some honey or sweetened milk. In the presence of a high fever, the leeches should be "primed" by washing them in warm water. Care was to be taken whenever the site indicated for the application of the animals was close to the nose or any other orifice, to prevent them making their way into the orifice. This could be achieved by the use of special glass tubes that prevented them from escaping or by the use of a string threaded through the leeches' rear end. The leeches could be made to dislodge prior to their becoming engorged by sprinkling some salt over them. The same leeches could be used repeatedly on the same patient, but nurses were advised never to use the same leech on different patients. The leeches were to be stored inside a well-aerated container containing water. After use the animals were to be wetted with salted cold water and then placed in their container²². The folklorist G. Galea in 1969 referred to the common 19th century practice of assisting application by piercing the patient's skin until blood flows out²³.

Twentieth century

The use of leeches in medicine in Malta continued to be popular in the first decades of the twentieth century. Until the 1930s, the animals could be purchased from a shop in the rural village of Qormi (Malta). Dr. G. Zammit Maempel still has in his holding the container used by the Qormi pharmacist to hold the medicinal leeches¹⁷ [pers. comm. 16/11/98]. The medical historian and psychiatrist P. Cassar reported the use of leech application in a private residence at Sliema (Malta) in 1937 used to treat an acute episode of gout causing swelling of the great toe²⁴. Leeches were also reported to have been accidentally imported with cattle from North Africa; but the most likely species in this instance is the non-medicinal leech *Limnatis nilotica*²⁵. It has been reported that Prof. J. E. Debono, the Professor of Medicine and Head of the Clinical Department of the main civil hospital in Malta, was using leeches for the management of fevers in the Central Hospital soon after the cessation of the Second World War hostilities in Malta about 1943. Several medical and paramedical personnel have furnished their experiences in relation to the use of medicinal leeches. The pharmacist V. Cancio reports that he remembers

the use of leeches on his cousin at the Central Hospital in the period about 1943, but he has no recollection of any use of leeches during his career as a pharmacist since qualification in 1956 [pers. comm. 17/11/98]. The anaesthetist Dr. N. Azzopardi (qualified 1961; retired 1999) could not confirm any personal experience of the use of leeches, though he remembered his father mentioning their use in about 1940s [pers. comm. 16/11/98]. The paediatrician Dr. P. Vassallo-Agius (qualified 1958; retired 1999) remembers the use of leeches being prescribed by Prof. J. E. Debono for congestive heart failure [pers. comm. 19/11/98]. Prof. Debono qualified as a doctor in 1925 and occupied the post of Professor of Medicine until his retirement in 1963. Subsequent incumbents to the posts of Professor of Medicine or Professor of Surgery including Prof. J. V. Zammit Maempel (qualified 1937, retired 1973); Prof. F. Fenech (qualified 1955, retired 1995); Prof. A. J. Psaila (qualified 1961, retired 1999); and Prof. V.G. Griffiths (qualified 1942, retired 1977) all have no personal recollection of the use of leeches in medical practice [pers. comm. Nov-Dec 1998].

A more recent use is recorded by Dr. G. Zammit Maempel at Birkirkara (Malta) in the late 1960s. The case involved an elderly male patient suffering from severe congestive heart failure. He was seen by a doctor of Sicilian origin who prescribed the applications of leeches over the hypochondrium. The leeches were purchased from Sicily²⁶ [pers. comm. 16/11/98].

Discussion

Since no leeches haematophagous on mammals are found in the wild on the Maltese Islands, the use of these animals for medicinal purposes presumably required their importation. There is to date no information as to the source of leeches before the nineteenth century. Prior to the nineteenth century, the Maltese Islands were under the dominion of the Order of the Knights of St. John of Jerusalem whose continuous conflict with the infidel Muslim is generally assumed to have precluded regular trade-links with North Africa. The Order maintained a number of Consulates in cities with which the Order had trade links. Throughout the 18th century Maltese consular establishments dotted almost the whole of the Mediterranean littoral and elsewhere. No consulates were established in North African countries²⁷. However, the Malta Hospitallers's much vaunted enmity to Islam was not a complete obstacle to maintaining commercial relations with the North African countries and apparent commercial links, albeit on a small scale, were maintained with Tunisia and other Ottoman and North African ports²⁸.

Trade-links changed significantly at the turn of the eighteenth century when the Islands fell under British dominion. Maltese mercantile interests abroad started being provided for by Great Britain's wider and better-organized consular system. During the nineteenth century, the leeches used in the Maltese charitable institutions were purchased after a public call for tenders was issued. The contractor, who had to submit a sample of fifty leeches before being awarded the contract, bound himself to supply the quantity required for a whole year²⁹. The contractor also had to keep in hand a stock of five thousand leeches ready for service subject to a penalty of £40 in case of failure. Their price, in 1840, was about six shillings per hundred leeches, which had to be of "first class quality, in perfect health and fit for the use and effect required of them by the medical art"³⁰. Before acceptance from the contractor, they were examined and approved by the Senior Physicians and the pharmacist. On the

17th December 1840, the Purveyor of Charitable Institutions instructed that "I Signori Medici Principali, e lo Speciale si compiaceranno d'incontrarsi per esaminare e rapportare in iscritto, se la qualita` delle Migniatte che si esibiscono dal Contrattore nel vaso che accompagna la presente siamo buoni e ricettibili per servizio delli Spedali, secondo i termini della sua obbligazione che sono come siegue, cioe` 'che le Migniatte debbano essere di prima qualita, perfettamente sani, ed atte ben l'uso ed effetto richiesto dall'arte medica'"³⁰. He subsequently reported that "Agreeably to public Advertisement I have received two offers for the supply of Leeches for the Civil Hospitals and having submitted the samples to the inspection of the Principal Medical officers, they have approved sample No.2 which is the lowest and while I will accept if the Committee have nothing to say on the contracting. I enclose for perusal the Statement with the 2 tenders and the report of the Medical officers"³¹. Similar instructions were repeated on the 21st June 1858 asking the hospital physicians: "Gentlemen, Allow me to request you will have the goodness to form yourselves into a Board for the purposes of examining several samples of Leeches now in the Comptroller's Office and to recommend the best quality for the use of the Charitable Institutions"³².

Interruptions in the provision of leeches sometimes occurred either because of their inferior quality or because of the exhaustion of the reserve stock or because of delay in their importation from Tunis and Bone on account of bad weather¹⁷. Whenever allowance was made for British Military personnel to be admitted to the Civil Hospitals, the Military authorities were obliged, excepting in cases of urgency, to provide the required medicines including leeches. On the 19th March 1853 the Inspector of Charitable Institutions instructed the Resident Assistant Physician at the Central Civil Hospital that while "It is understood that the Military are to provide their own Medicines and of course leeches are included, but in case of urgency you are to supply all articles, Medicines or instruments which may be required by the Military Medical Men"³³.

The owners of merchant ships reportedly imported the medicinal leeches to Malta. In 1900 the Maltese novelist A. Preca records a fictional dialogue between two merchant ship owners in a Maltese harbour setting in about 1885. One owner remarks that he had imported leeches from a French protectorate (*Kala Franza*). These he had bought from an Arab who had supposedly collected them himself by the simple expedient of putting his bare leg in the mud near the river's edge³⁴.

More than one species of leech may have been used medicinally in Malta. However, to date, the identity of these species has not been precisely determined. The species reportedly imported from Tunis and Bone in the nineteenth century may have been the North African Leech *Hirudo troctina*. Early accounts refer to this species as originating from 'western North Africa', but it has barely been mentioned for about 150 years. The species imported from Sicily in the 1960's and possibly the pre-19th century was most likely *Hirudo medicinalis*³⁵.

In line with medical practice in Europe, the use of medicinal leeches in Malta lapsed significantly before the latter half of the twentieth century. In recent years, the useful medicinal properties of the blood-sucking leech are again being investigated, particularly in the field of plastic surgery. The past use of leeches has been shown to have some medical justification, and no less than eight medically useful substances are now known from their salivary secretions³⁵.

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Notes

^A Medical & Health Archives: Letter from G. Montanaro to G. Casolani dated 19th December 1840. *Letters from Purveyor of Charitable Institution 2nd January 1838 to 28th April 1842*, fol.99-100 [manuscript held at the National Archives Museum Ms.no.84]. "I have already mentioned to you the difficulties which exist at present regarding the Leeches purchased by the Contractor, and that to remove the idea which he had formed that the apothecary was using him with too much vigour, I had requested the three Principal Medical Officers and the Apothecary to meet together and examine a number of Leeches contained in a Bottle which the contractor exhibited as a sample of those which he had to supply. I now send you the report of these gentlemen accompanied with a Bottle containing the Leeches which have been selected by them out of the sample and stated to be of the quality they require, but the Contractor offers some observations on the quality of these animals, and says that they should be assorted and not all of one size, and that he is actually laboring under many difficulties, and I beg to refer him to you that he may take his case. I informed him at the same time that he must attend to his agreement or that I shall be under the necessity of providing Leeches at his account, which frightens him beyond measure. I have inquired at the Military hospital, & I find that they are actually buying very small ones for 10/- per hundred, and our Contractor's price is 5/11¹/₂, and it is therefore evident that, even when he furnishes small ones he is losing materially. In the Military hospital they make use of very few Leeches as they have orders to use chiefly cupping, excepting on some particular cases; our Medical officers have had this order from the Committee some time ago, as you will see in the Book of Resolutions if you will have the goodness to refer to the index, under either "Leeches or Cupping", but they, it appears, pay little or no attention to that order, as we use upon an average of the last three months, 2,600 per month".

^B Medical & Health Archives: Memorandum from the Office of Charitable Institutes and Prisons, Valletta dated 22nd June 1855 to Medical Officers of the Central Civil Hospital, Santo Spirito and Gozo. *Central Hospital Correspondence 16th May, 1850 to 8th December, 1858*, fol.55/5 [manuscript held at St. Vincent de Paule Hospital] "The Medical Officers of the Hospitals are requested to instruct the Servants on the Management of Leeches after application. By proper treatment Leeches may be used many times. After the Leech has dropped off a single pinch of fine salt should be dropped on its mouth, and after it has disgorged it should be washed in fresh water. The present practice of throwing the animal amongst wood ashes or salt injures them and causes an excessive mortality."