ORTHOPAEDIC SURGERY IN THE SIXTEENTH AND SEVENTEENTH CENTURIES

TRACTION APPARATUS—THE VIDIAN PICTURES

D. LL. GRIFFITHS and WILLIAM BROCKBANK

From the Medical Library of the University of Manchester

The story of traction apparatus in the sixteenth and seventeenth centuries is part of the story of the effect of the Renaissance and of the rediscovery of Greek texts. Traction, more or less in the long axis of the limb, had been the classical method of reducing fractures since early antiquity. Hippocrates gave an account, as surprisingly modern as is so much of his work, of its dangers and its limitations. But Hippocratic appliances for producing powerful traction appear to have dropped out of use in the general decline of learning which followed the fall of Rome. Guy de Chauliac (1300–1388) is credited with the introduction of continuous traction with a weight and a pulley for the treatment of fractures of the femur, but very little else is known about pre-Renaissance traction appliances.

Greek learning lasted longer in Byzantium than in Western Europe. Somewhere about A.D. 900 a Byzantine physician named Niketas made a collection of surgical manuscripts which included a series of full-size plates illustrating the treatise of Hippocrates on dislocations. The illustrations represented Byzantine practice but their genuineness is accepted. The manuscripts, with the illustrations, were bought in Crete in 1485 by an agent for Lorenzo de Medici and were reproduced by two Renaissance artists, one of whom was Primaticcio. These reproductions were in turn used by Guido Guidi (1500–1569) to illustrate his collection of translations of surgical papers which he published in 1544 in Paris by permission of ‘the Pope, the King of France, and the Duke of Ferrara.’ Guidi, whose Latinised name, Vidius, is commemorated by his discovery of the Vidian nerve, was an anatomist-surgeon. One of the teachers of Vesalius, he was a supporter of Hippocratic principles and an antagonist of those who believed that blood passed from the right heart to the left directly through pores in the septum. He also gave a description of syphilitic caries of the skull that was probably the first of its kind (Mettler).

Guidi’s ‘Chirurgia è Graeco in Latinum conversa’ is a series of translations of Greek authors into Renaissance Latin with a certain amount of original commentary. The text of the orthopaedic sections is very second-hand. There is no direct translation of an original author in the sections on fractures, on joints, or on dislocations. Instead, these chapters are renderings into Latin of commentaries on the original Greek authors, such as Galen’s commentary on Hippocrates’ account of fractures, and the commentary of Oribasius on Heliodorus’s description of surgical appliances. Oribasius (A.D. 325–405) was a Byzantine, a compiler rather than an original author, whose compilations saved many works from loss. Heliodorus lived probably just before Celsus in the first century and is mentioned by the poet Juvenal. It was in the chapters on Heliodorus’s work that the Primaticcio illustrations appear.

The simplest of the traction devices shown in these pictures certainly existed before Hippocrates, for it consisted simply of levers used singly or in pairs (Fig. 1). Windlasses were advocated to give even more powerful traction (Fig. 2). A combination of windlasses and pulleys provided the traction force in the ‘Glossocomium’ (Fig. 3). This is perhaps the oldest fracture-apparatus of all. The name is interesting, for though the Greek lexicon (Liddell and Scott) gives its Galenical use as ‘a surgical instrument for reducing fractures and dislocations,’ the word also means a case in which to keep the reeds and tongues of musical instruments; and in the New Testament it is used to mean a coffin.
Traction on a fracture of the lower leg by means of two levers (Vidius). This is illustrated in the chapter dealing with Galen’s commentary on Hippocrates’ work on fractures. The “traction tapes” (lora) were leather thongs—Hippocrates recommended ox-hide.

Simple windlasses replace the levers in this diagram in the same section of Vidius’s book.

The Glossocomium. This illustration of the appliance comes from the 1625 edition of Galen. Vidius has a diagram with identical explanatory notes and lettering, but his more beautiful drawing is less clear.
The Oribasius-Heliodorus section of the book illustrates several much more complicated machines including an upper limb appliance (Figs. 4 and 5). But the most famous of all the appliances illustrated by Vindius is the Hippocratic *Scamnum* (Fig. 7). This device, about which there has been some controversy, and which in its Vidian form may have derived as much from the mediaeval rack as from the Greek scamnum, could be used for the reduction of almost any fracture or dislocation. We have already illustrated examples of its application to injuries of the shoulder and the spine in earlier numbers of this series of annotations and it is shown here in the treatment of a fracture of the mandible (Fig. 8). This versatile appliance appears to have remained constantly in use, well into the eighteenth century. Fig. 6 shows the reduction of a fracture of the leg by means of the *Scamnum*, in the time of Johann Schultes (Scultetus, 1595–1645) one hundred years after Vindius.

The Greek, mediaeval and Renaissance interest in more and more powerful traction reflects the contemporary ignorance of direct manipulation as a means of reducing fractures. In view of the early use of manipulation in dislocations this is a little odd, but reduction of
The Scamnum in use in the seventeenth century (Scultetus). This is the Vidian reconstruction without the modifications suggested by Littre.
fractures by anything other than traction appears to have been unknown until almost the nineteenth century. The fracture appliances of later writers in the sixteenth and seventeenth centuries, such as Paré, Fabry and Schultes, show no more than increasingly powerful machines, leading ultimately to the use of block and tackle and screw-traction appliances such as we previously illustrated in use for dislocations of the shoulder.

The Scamnum of Hippocrates. This was recommended by its originator (On Joints, LXXII) as worth while obtaining by anyone practising surgery in a populous city. It is considered that Vidius's illustration (shown twice in his book) may err in showing square holes (D) down the middle. These should perhaps have been a series of deep parallel grooves for a perineal centre post (E) which should be shorter and less pointed. The corner posts (B) are possibly also too high (Littré). The intermediate supports (F) may originally have been movable. One specimen of the Scamnum which is still in existence is, however, of the Vidian type. Fig. 8 shows the Scamnum in use for a mandibular fracture (Vidius).

REFERENCES

Scultetus, J.: Armamentarium Chirurgicum. (Leyden, 1665.)

General reference has also been made to: