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SURGICAL INSTRUMENTS AT THE ALAHANA PARIVENA HOSPITAL IN POLONNARUWA

ARJUNA ALUWIHARE
Professor Emeritus, University of Paradeniya, Kandy, Sri Lanka.
E-mail: aluwihare@pdn.ac.lk

Abstract: *Indigenous medicine systems in India and Sri Lanka and China have been well developed for many hundreds of years. Equally, illnesses of all kinds and results of violence and tumour formation are known to have existed. The Alahena Parivena hospital at Mihintale, is near one of the old capitals of the Sinhalese kingdom at Polonnaruwa, the capital of Sri Lanka after the destruction of Anuradhauram. The discovery of instruments found there - around 900 years old - so closely resemble modern surgical instruments that one can deduce the different types of surgery practiced at that time. They must have treated injuries, tumours, and many conditions similar to what modern surgeons deal with now. Anaesthesia may have been opiates, hypnosis, and tolerating some pain. The discovery of these instruments - a bigger collection than found anywhere else - provides physical evidence of what must have been done and is therefore a very important addition to the history of medical science in ancient South Asia.*

Keywords: *Surgical instruments, Poonnaruwa, Sri Lanka*

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Introduction

Surgery in known to have flourished in the Indian Subcontinent from before the onset of the Christian Era (Mukhopadhaya, 1914; Prakash, 1978). Surgery is known to have existed as a science in Greek times, and in many parts of the world (Mukhopadhaya, 1914). Instruments resembling those used for surgery in modern times have been described in texts, and also found in several places (Cassar: 1974:18, 89-93; Gazzaniga & Serarcangeli: 1999:11,217-29;

Hamarneh: 1977: 62, 520-4; Marshall, 1960). In Taxila, in what is now Pakistan, instruments, at least some of which are surgical, were found[1] in

and around Sirkat (Marshall:1960; Naqvi: 2003:47, 89-98) without any hospital like building, but not at Mohendajaro. Models on Arab instruments are on display in Kuwait[2]. In the heyday of the Roman Empire surgery was done, and instruments were found in Pompeii in Italy and a house called a surgeons house as the instruments (presently in the Museum in Naples) were there, but there is no other evidence of the real occupation of the householder[3]. In Britain there are examples of Roman era instruments[4]. Surgery was known in China but surprisingly there were no instruments in one of the best sites in that country[5]. In the old Hotel Dieu hospital in Lyon in France surgery is said to have been done but although remains of that hospital form part of the present hospital complex there are no instruments extant from that time[6].

The Alahana Parivena Hospital at Polonnaruwa in Sri Lanka was a part of a large Monastic complex. There is independent textual, epigraphic, and archaeological evidence (Fig.5.1) that this building was a hospital - notably the location of a stone medicinal bath as can be seen in Fig.5.2 (Prematilleke & Aluwihare: 1990: 10: 281-289; 1995: 767- 781).This is the only occasion when the purpose for which the instruments were used - namely a surgical one- could be deduced from the location of the artefacts and not just from their shape. These were therefore very significant finds made during routine excavations of the area (Prematilleke & Aluwihare: 1990: 10: 281-289; 1995: 767- 781). The then King- Parakramabahu the Great, is also said to have been a surgeon.

The artefacts and instruments recovered from the site are enumerated below. Similar instruments have also been recovered from India. Moreover, drawings of some of the artefacts are also found in early Indian and other texts (Mukhopadhaya: 1914). These artefacts and instruments as seen in Figs 5.3, 5.6 – 5.9, 5.11-5.15 and 5.17 resemble very closely items in use at present to perform surgical procedures.

Among the artefacts recovered from the structural remains of the Hospital (Fig. 5.1) is a stone medicinal trough that provides archaeological evidence that the building was a hospital (see Fig 5.2). Other remains include an oblong grindstone (Fig.5.3), and a circular grindstone (Fig.5.4). Both must have been used for preparing medicines by grinding, making a paste of different substances, etc. Containers (Fig.5.5) for storing slaked lime and areca nut cutters (Fig. 5.6) indicate that the people engaged in the hospital must have been in the habit of chewing with betel and tobacco. A spoon has also been recovered from the site (Fig.5.9).

Remains of weighing scales and large pans (Fig. 5.7) used for weighing raw material and medications. Another weighing scale with very small pans (Fig. 5.8) was perhaps used for weighing heavy metals (for medications) or opiate like substances. There were known to be methods of rendering people insensible during surgery and then waking them again (Gazzaniga: 1999:11, 217-29). These and the articles in Figs 5.9 to 5.11 were made of a copper or bronze.

The other instruments appear to be iron and consist of the following: Metal applicators (Fig.5.10) used for applying medications or cosmetics around the eye perhaps; Probes (Fig.5.11) which are known to have been used to sound cavities and in the delineation of fistulae and sinuses perhaps. Very similar instruments were also found near St Albans in Edinburg; Large scissors (Fig.5.12) of which there are several examples - of the kind used to cut cloth for bandages and dressings; Smaller scissors (Fig.5.13) were probably fitted with wooden handles and perhaps used for cutting tissue; A lance- a type of instrument (Fig.5.14) used for 'stabbing' open tissue very quickly to drain pus from an abscess or cut through the perineum (between the anus and the scrotum) for stones in the urinary bladder.

A number of forceps of different shapes and sizes were also found. Forceps with very strong jaws (Fig.5.15) might have been used for removing dead bone or extracting teeth. Forceps with more delicate structure (Fig.5.16) that might have been used to handle tissue like skin

or intestine - even more delicate forceps were found here and in Taxila. A scalpel to be used with a wooden handle (Fig.5.17) was also found. Scalpels made entirely of metal exist at Taxila and in Edinburgh from around the same period. The modern scalpel is lighter but of very similar shape. This is the instrument, *par excellence*, used for starting to cut open the skin in non emergency operations such as the removal of lumps under the skin, problems in the abdomen, and so on.

Discussion

A reference to other finds of surgical instruments has already been made in the section labelled Introduction. The hospital in Polonnaruwa was more fully described in the context of Sri Lanka history by Premathilleke *et al* (1990), as well as Marshall (1960) and Mukhopadhaya (1914). The weighing scales, lime containers and areconut cutters are virtually identical with modern equivalents. More importantly, these instruments - particularly the scissors, forceps, lance, and scalpel are almost identical with modern instruments. There are texts of Susrutha and Charaka (Gazzaniga & Serarcangeli: 1999: 11:217-29) which describe old instruments and the operations done at that time before and just after the beginning of the Common Era. Finding instruments at Polonnaruwa is of very great significance as it indicates that operations were actually done - and not just imagined. The finds also ratify the statements about surgery in Sri Lankan texts.

The decline of the surgical skills that existed is blamed variously on a supposed discouraging of animal experiment by Buddhism, colonial occupation, malaria and so on. A fascinating theory is that the physicians and surgeons argued amongst themselves too much to present a united front on any medical policy matter, and also thought themselves too important to attend policy meetings on national finance, agriculture, transport, military, or other policy (Gazzaniga & Serarcangeli: 1999: 11:217-29) - with the result that they cut themselves off from major policy making and resource allocation decisions - leading to them losing control of the funding of their profession and facilities and their decline. Perhaps they did not realise that most people are healthy and of those that get ill many get better without medical or surgical help.

Fig. 5.1

Fig. 5.2

Fig. 5.3

Fig. 5.4

Fig. 5.5

Fig. 5.6

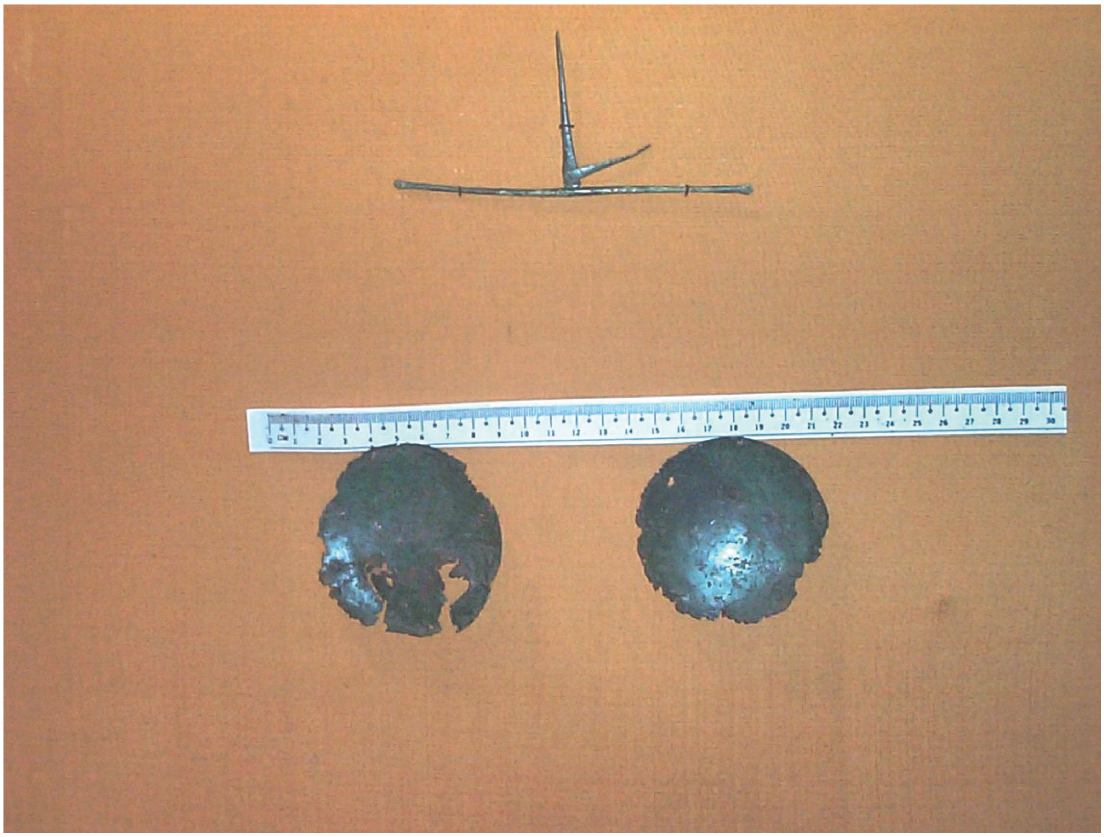

Fig. 5.7

Fig. 5.8

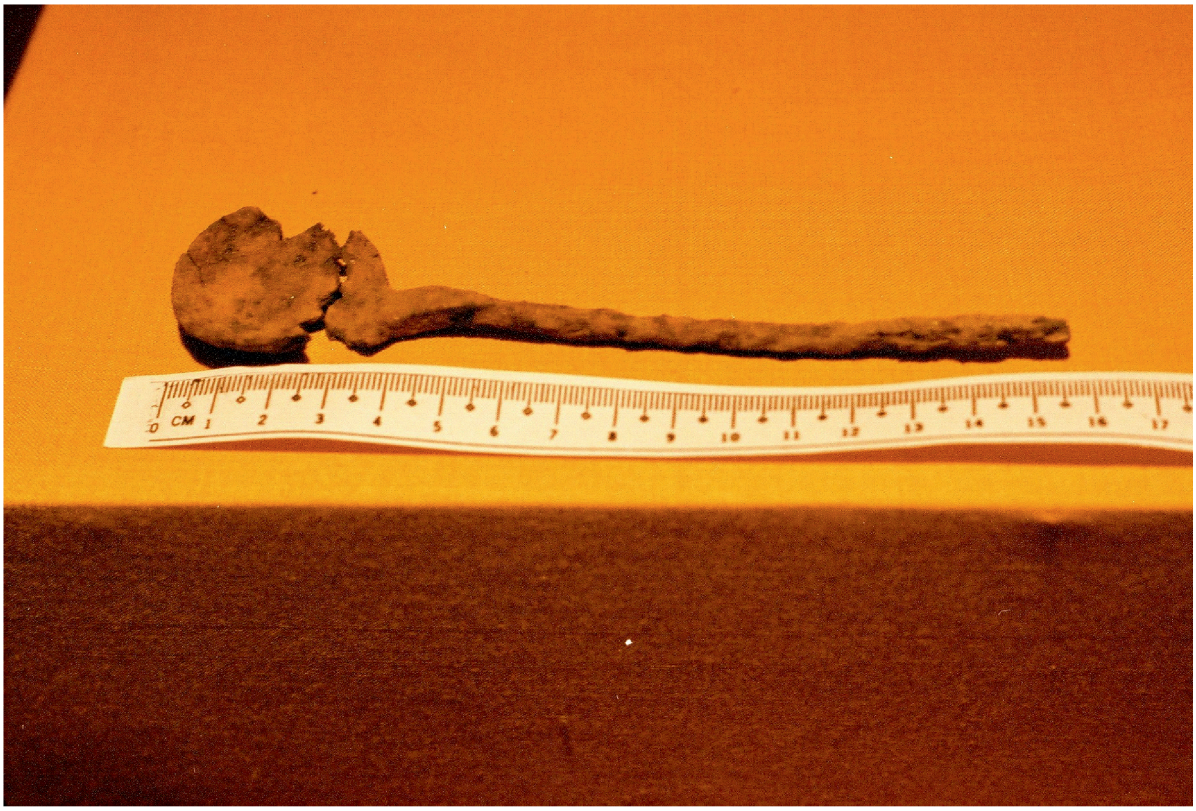

Fig. 5.9

Fig. 5.10

Fig. 5.11

Fig. 5.12

Fig. 5.13

Fig. 5.14

Fig. 5.15

Fig. 5.16

Fig. 5.17

Conclusions

The skill of the early doctors and specifically surgeons is well demonstrated by the archaeological finds discussed in the foregoing section. Assessment of possible reasons for the decline of the specialty in South Asia before the advent of modern medical practices may have lessons for the surgical power bases of the present.

Acknowledgements

The former Professor of Archaeology at the University of Peradeniya, Professor P.L. Prematilleka, deserves the gratitude of the whole country for his pioneering work at Polonnaruwa. His colleagues and students deserve mention, and many have helped me more recently. It is a pleasure to thank the National Department of Archaeology and the Director of the Museum at Polonnaruwa for allowing these photographs to be taken and used.

Notes

1. Aluwihare A.P.R. (1991) Personal observations in Taxila, Sirkat and Mohendajaro.
2. Aluwihare A.P.R. (1983) Personal observations in Kuwait.
3. Aluwihare A.P.R. (1994) Personal observations in Naples and Pompeii.
4. Aluwihare A.P.R. (1986) Personal observations in Edinburgh, St Albans.
5. Aluwihare A.P.R.(1991) Personal observations in Xian
6. Aluwihare A.P.R.(1995) Personal observations in Lyon

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