

Medicine in a Roman city

The excavated city of Pompeii provides insight into medicine in first century CE Roman life

An examination of the archaeological sites and material at Pompeii related to medical treatment, including surgical instruments and other medical equipment, remnants of drugs and herbal medicines, evidence of traditional practices related to religion and the deities associated with healing and magic, as well as the human remains found, can provide some appreciation of how medical problems were dealt with in Roman society. Many of the medical instruments, procedures and medications used at that time would be familiar to modern practitioners.

Roman medical equipment found at Pompeii's sites

The collections of medical equipment, containers for medicaments and drug residues found at archaeological excavations in Pompeii have identified sites where medical practices occurred. Surgical instruments have been found at 27 sites, but five sites in particular were found to contain a large variety of medical instruments, with many of these being quite sophisticated.

A large number of medical instruments, including scalpels, spatulae, hooks, bleeding cups and forceps (Box 1, Box 2), were found at one particular site on the Via Consolare (Consular Way) in Pompeii, indicating that this site was the residence of a surgical specialist

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2 Forceps (centre) and grasping forceps (right) surrounded by spatulae, now in the Museo Archeologico Nazionale di Napoli



— the site is known as the Casa del Chirurgo (House of the Surgeon). Other sites had scalpel handles, hooks, retractors, probes and needles and a cylindrical case for carrying medical instruments. Two dwellings have been identified as pharmacies, the Farmacia (Pharmacy) in Via Consolare, which contained pills, the residue of liquids in bottles, a case with compartments and a drawer that was presumably used to contain drugs, and the Casa del Centauro (House of the Centaur), which had containers, scales and instruments used in the preparation of pharmaceuticals.¹

Roman medical procedures and specialties

Many of the medical instruments uncovered in the Pompeii excavations are now in the Museo Archeologico Nazionale di Napoli (National Archaeological Museum of Naples). These Roman instruments were clearly used to perform fairly complex procedures and include scalpels of various shapes and sizes and many types of forceps, tweezers and probes for exploring wounds and other cavities.

Some of Pompeii's surgeons would have obtained their skills in the Roman army, which would have equipped

1 A bleeding cup used to assist phlebotomy, now in the Museo Archeologico Nazionale di Napoli



them to perform moderately complex surgery and to deal with the serious injuries sustained by gladiators. They would have been aware of the procedures detailed by Aulus Cornelius Celsus in his celebrated treatise *De medicina* (On medicine), including the methods he describes of wound suturing, applying antiseptic dressing, ligating blood vessels, amputating limbs, treating goitre and performing plastic surgery on the face. In the absence of anaesthesia, Roman surgeons learned to operate quickly and to not be distracted by noisy patients who were restrained and given drugs such as opium, henbane and mandrake for sedation and analgesia.²

A further range of medical instruments found in the excavations indicate that other specialist medical practitioners were present in Pompeii. In the Piazza dell'Anfiteatro, the skeletal remains of one individual were found lying over a wooden chest of medical instruments containing a bronze needle used for treating cataracts, as well as probes, scalpel handles and a needle holder, suggesting he was an eye specialist. (Celsus described a method of treating cataracts and the instruments used in *De medicina*.) A house bearing the name of Medicus A Pumponius Magonianus, who was presumably a gynaecologist, contained intricate vaginal speculae (Box 3) as well as traction hooks, toothed forceps and amputation knives. The latter were used by Roman obstetricians to deal with an obstructed labour. These destructive procedures were described by the Greek physician Soranus of Ephesus in the first century CE in his treatise *Gynaikeia* (Gynaecology). Bronze cups were also found at the House of A Medicus Pumponius Magonianus that were used to draw blood from a skin incision or applied to pressure points to relieve symptoms.

Roman medical preparations

The Romans used a wide range of natural materials, plant, animal and mineral, to treat medical disorders. In the first century CE, Pedanius Dioscorides, a Greek physician, pharmacologist and botanist employed by the Roman army, described more than one thousand natural products that were reputed to have over four thousand medicinal uses in his *De materia medica* (On medical material), a five-volume encyclopaedia and pharmacopoeia about herbal medicine and medicinal substances. Plant fragments and pollen found in the garden of the Casa dei Casti Amanti (House of the Chaste Lovers) in Pompeii have been analysed. In this process, several plants were identified that could have been cultivated for medicinal purposes.³ These plants include *Artemisia*, said to have warming properties; cabbage (*Brassica*) to relieve nasal congestion; and dock (*Rumex*) for treating swellings in the neck and skin conditions. In addition, other plants that were reputed to have numerous beneficial effects were found growing in Pompeii during the excavations, including

3 Assorted medical instruments, now in the Museo Archeologico Nazionale di Napoli: a vaginal speculum from the House of Medicus A Pumponius Magonianus (top right), a male catheter (centre), a cannula or trocar (far left), and three tubular instruments of unknown purpose



maidenhair fern, hollyhock, chicory, lemon, larkspur, fennel, St John's wort, parsley and plantain.

Containers and compartmentalised cases suitable for holding drugs have been found at several archaeological sites at Pompeii, with some of these containers still retaining the residues of medicaments. Analyses of these residues have so far identified only minerals, including copper, lead, zinc and iron — all of which Dioscorides recommended for the treatment of wounds and ulcers in his *De materia medica*. Organic substances used for sedation and analgesia have also been identified during the excavation of a farmhouse close to Pompeii, with the discovery of a small cooker and storage vats containing opium poppy, cannabis and henbane.

Medicine and religion in Roman life

Medicine and religion were closely connected in Roman cities. In Pompeii, the excavations have revealed temples dedicated to the healing deities, and altars on street corners and domestic shrines in the homes devoted to spirits protecting the wellbeing of the citizens. The gods and spirits were part of everyday Roman life so they were naturally believed to be involved in the cause, as well as the cure, of health problems. Temples and street altars were dedicated to Aesculapius, the god of healing, and Salus, a deity responsible for physical and moral welfare.

As part of this Roman belief, deities associated with healing, particularly the hero gods, were often represented engraved on Roman surgical equipment. The motif of Hercules has been found present on instruments such as scalpels, retractors and needles — all of which were associated with procedures involving

considerable pain — in recognition of Hercules' mythical life, endurance and ability to overcome pain and hardship.¹ Aesculapius, in his capacity as god of healing, was also symbolically represented on Roman medical equipment, often by the symbol of his rod or staff with a snake entwined around it — a symbol that is still used to represent the medical profession.

What we can tell about Roman health from the human remains found in Pompeii

The skeletons of over one thousand victims have been recovered in Pompeii.⁴ Many were presumably asphyxiated by volcanic gas from the eruption of Mount Vesuvius as examination of the casts of 88 bodies from the superficial ash layer did not show any signs of trauma but reveal poses consistent with hyperthermia or asphyxia. Skeletons from the deeper layers of the excavations, mostly within buildings, had unhealed skull fractures and other injuries caused by falling debris and collapsing walls and roofs as the town was destroyed. However, the skeletal remains found in Pompeii have also been investigated to obtain demographic and medical information about Roman life in the town at the time.

From this investigation of the remains, it appears that there were about equal numbers of males and females, with ages ranging from juveniles to older people, among those caught and buried in the Mount Vesuvius eruptions.⁵ The examination of teeth revealed considerable wear compared to teeth today; dental caries and abscesses were present, as was enamel

hypoplasia attributed to severe childhood stress caused by conditions such as infections, nutritional deprivation or trauma occurring at the time of crown development.⁵ Healed fractures were seen among the skeletal remains, including of the skull and long bones, with only a proportion of the latter appearing to be well aligned. Evidence of arthritis, involving the spine, elbows and knees, was found to be common on examination of the remains, probably resulting from a life involving hard physical work.⁶ There is also evidence of trepanation being practised successfully, with healing at skull edges present.⁷

It is notable that cribra orbitalia and porotic hyperostosis due to resorption of cortical bone in the skull and orbits, associated with marrow hyperplasia, was present in many of the skeletons from the Pompeii excavations. This was most likely due to megaloblastic anaemia or haemolytic anaemia in childhood. Cribra orbitalia may also result from subperiosteal haematomata in the orbit, which is particularly associated with scurvy or trauma in childhood.⁸

A percentage of the population in Pompeii may also have suffered from the consumption of excessive lead, as it was used in many situations in Roman life, including the manufacture of water pipes, utensils and fluid containers, as well as for concentrating wine and fruit juice by heating in lead cauldrons.⁹

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