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Review Article

Historical Evolution of Orthopaedic Surgery in Ancient Egypt: Review of Edwin Smith Surgical Papyrus

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Abstract

The ancient Egyptians established a civilization that lasted over 3000 years around the Nile River. Besides the writing on papyrus, The Egyptians have a unique system for recording and writing their civilization on the walls of temples, cemeteries, and obelisks. Not only did they have remarkable achievements in governance, architecture, science, art, and religion, but the ancient Egyptians had an impressive and iconic practice of medicine as shown in their records. Their records showed a well-organized system for medical practice, including protocols for diagnosis, investigations, and treatment of different medical diseases.

Keywords: Medicine history, Orthopaedic Surgery, Surgical Papyrus, Edwin Smith, Ancient Egyptian

Introduction

Orthopaedics Practice in Ancient Egypt

Ancient Egyptians had a high level of understanding of orthopaedic trauma. The Edwin Smith Papyrus and the Ebers Papyrus are the most important among hundreds of records about the surgical practice belonging to the ancient Egyptians [1]. The Edwin Smith Papyrus has a very important surgical text that dates back to 1600 BCE, it is based on older texts that are thought to belong to the old kingdom period 2700 BCE (the time of building pyramids) [2]. This papyrus describes different types of injuries, especially to the body's skeletal system. The description includes details of diagnosis, treatment modalities, procedures, and even the prognosis for many fractures and joint dislocations.

Edwin Smith's papyrus describes the ancient Egyptian record of different cases showing their ability to describe some cases that can be managed and others were documented to be out of their scope of knowledge so not to be treated. The famous example found in Edwin Smith's papyrus was a description of case 31 which shows their ability to spot symptoms, signs, examination, and protocol of treatment. The case describes a cervical injury (dislocation) with the inability to move upper and lower limbs (paralysis) and loss of urine control (incontinence), it was categorized as a bad prognosis with no treatment at that time [3-4].

Different types of fractures were treated in ancient Egypt, with a full description of the management plan including the use of a splint, even treatment of open fracture was mentioned4. Open fracture treatment was explained in detail by the use of grease and honey with daily dressing exchange and splinting [4-5].

The splints were mentioned in case 37 (Figure 1), It was made by a brake or piece of wood covered by linen and wrapped by a bandage, The technique for how to prepare the splint (the bandage was soaked in powered beans mixed with honey, resins, and left to dry and harden), and how to apply (use single or double splint sometimes) was described [3-6-7].

Long Bone Fracture

Treatment of long bone by immobilization was described in many cases with excellent prognosis, they even did good alignment before the splint application5. Description of humerus fracture with intact skin and no joint dislocation was described in case 38 (Figure 1) which was treated by a splint. Another case of the fracture of the humerus with injury to the skin and soft tissue was described in case 37 (Figure 1).

Reduction of the humerus shaft fracture was described in case 35 (Figure 1)

Description of splinting of forearm and femur fractures were also found in the papyrus and some well- designed splints were found in graves [5-7].

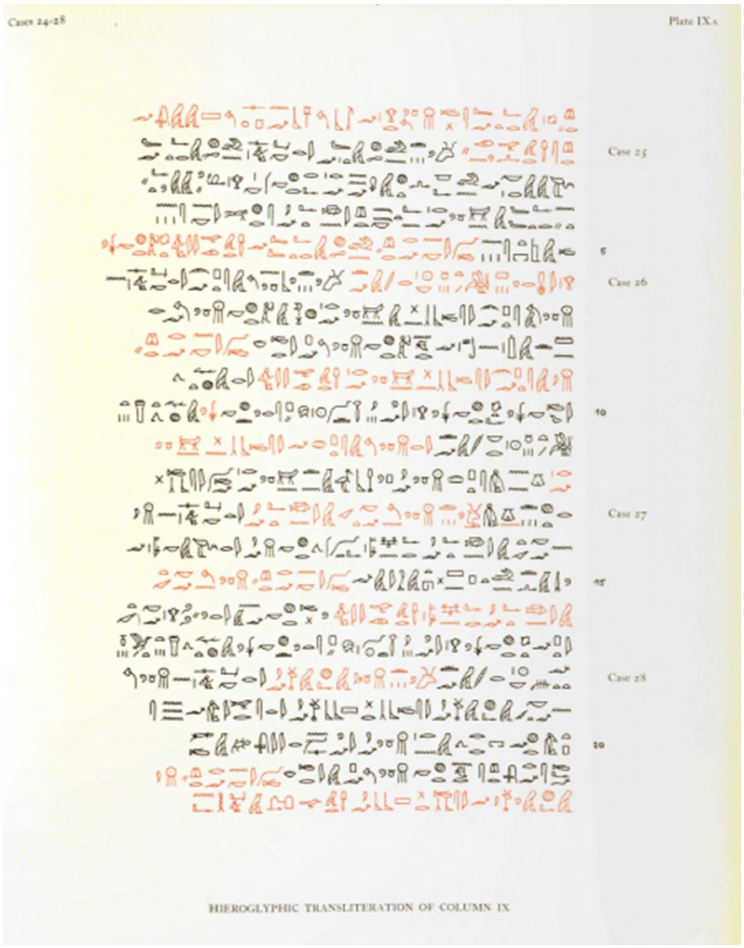

Figure 1. *Photographs of the Edwin Smith papyrus from the original publication by Breasted show cases 35,37,38.*

Joint Dislocation

Edwin Smith's papyrus describes the reduction of the dislocated jaw in case 25 (Figure 2) [8-9]. The evidence supporting that the ancient Egyptians reduced a dislocated joint was the painting on the wall of the tomb of Ipwy [5-8].

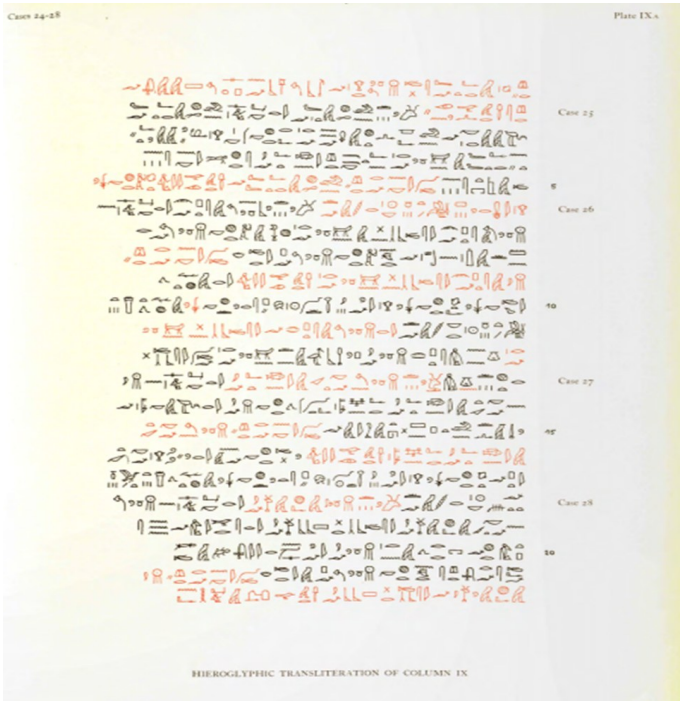

Figure 2. *Photographs of the Edwin Smith papyrus from the original publication by Breasted show case 25.*

Skull Fractures

In cases 18-20, the Edwin Smith papyrus describes skull base fractures (Figure 3) [9].

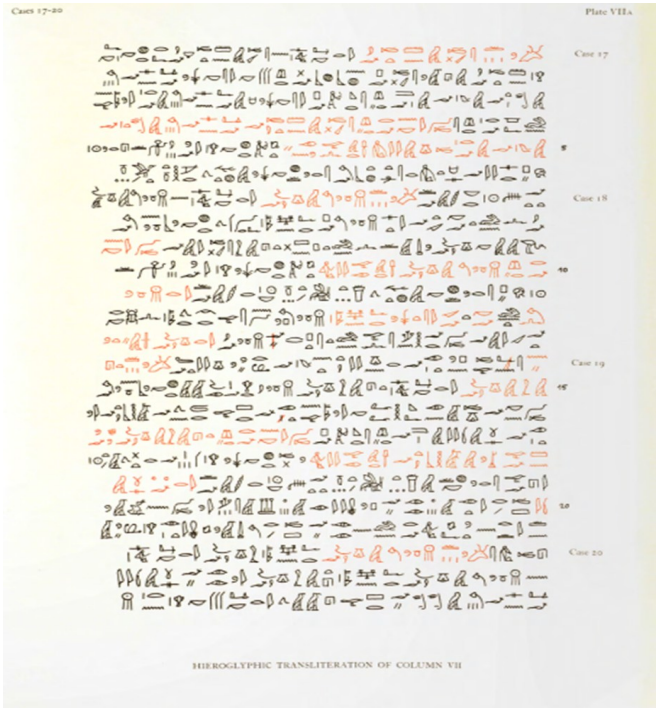

Figure 3. *Photographs of the Edwin Smith papyrus from the original publication by Breasted show cases 18,19,20.*

Spinal Injuries

Spine injury was described in the Edwin Smith papyrus case 48, The Ancient Egyptian doctor who wrote the case enumerated the symptoms for a patient with low back pain (Figure 4) [9].

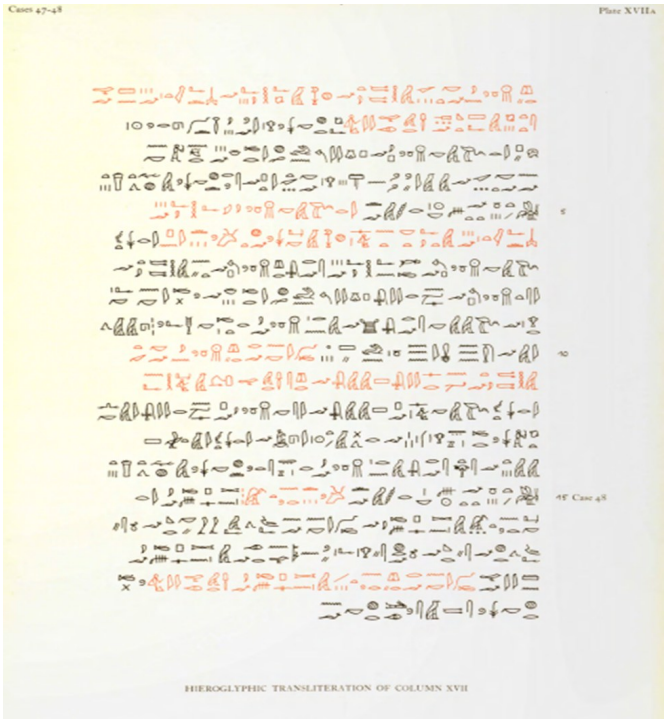

Figure 4. *Photographs of the Edwin Smith papyrus from the original publication by Breasted show case 48.*

Review

Ancient Egyptian's surgical practice was described in many papyri and painted on the walls of temples including the management of head injuries, fractures, joint dislocation, and amputation of injured limbs which was found in mummified bodies.

The Edwin Smith papyrus describes Ancient Egyptians' medical description of 48 cases, I go through cases that had skeletal injuries and highlight their interpretation of the presentation of cases, and their records regarding the respect of documentation of symptoms, signs, and management.

Conclusions

The ancient Egyptians treated different types of fractures of long bones and could do the reduction of dislocated joints, they also describe the use of immobilization of injured bones or joints using different types of well-fashioned splints. The Ancient Egyptians can treat open fractures with a recommendation of daily dressing which shows their understanding of the nature of the injury. The achievement of Ancient Egyptian medical practice for a clear description of different orthopaedics cases which include enumerations of the mechanism of injury, symptoms, signs, and management plan is a unique documentation based on the study of Edward Smith papyrus.

Conflicts of Interest

The author declare that there are no conflicts of interest related to this study.

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