



Contribution of Hippocrates (Buqrat) In Anatomy of Spine And Its Applied Concept

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ABSTRACT - The foundations of ancient rational medicine were laid by Hippocrates, His works, principles and teachings are composed and compiled under Corpus Hippocraticum. He has inspired countless debates in all fields of medicine including basic medical sciences. In his treatises, he has adopted the practical approach to the descriptions of the human body and the diseases associated. He has made contribution to the medical literature and medical education through his observations and clinical studies. This genius physician also was the first to deal with the anatomy of human spine. In his books, he provides a precise description of a segments and the normal curves of the spine, the structure of the vertebrae, the tendons attached to them, the blood supply to the spine, and even its anatomic relations to adjacent vessels. In the current work we have gathered the anatomy extracts on the topographic and functional anatomy of the Spine. We found that Hippocrates, described fairly, the basic structural anatomy as well as its Applied Anatomy. Hippocrates anatomy contributed immensely to the evolution of anatomical sciences and related medical disciplines despite being written before 25 centuries .

KEYWORDS – Curvatures Of Spine, Scoliosis, Kyphosis, Phthisis, Concussion, Fracture And Dislocation Of Spine.

INTRODUCTION –

Man has always remain inquisitive about health and diseases, all ancient civilisations developed their own way of understanding human body and different ways of treating diseases. Among them the most widely accepted systemic and scientific foundations of science like the study of anatomy, physiology, pathology, psychology etc were developed in ancient Greece and Rome.^[1,2]

Hippocrates (460 BC-378 BC) born in Greek island (Island of Cos) was a medical genius belonging to the society of Asclepiadae physicians and his teachers were Herodicus and his father, Heraclides. Arabs called him Buqraat. ^[3,4,5]



Today, Hippocrates is recognized as the founder of Systemic Medicine. Due to his scientific thoughts he freed medicine from the "influence" of mythological or supernatural spirits, religion, superstition, and magic ^[6,7] and transformed it from an empirical and religious art to a everlasting science.^[2,4] Hippocrates taught in Greece, Persia, and Egypt.⁸ His work was almost on all aspects of preservation of health and remedy for various health issues. In his teachings, Hippocrates tried to separate the beliefs of the past but much of his work has been lost.^[8] Though he did not do human dissections but he did not ignore Anatomy, indeed he considered that ***“Anatomy is the basis of medical discourse”***. ^[4,6] He wrote extensively on Anatomy and advised every physician should study anatomy, in particular that of the spine and its relationship to the nervous system, which controls all functions of the body.^[1,4] In addition to the writings of Galen, Celsus, Plinius, Hippocrate’s writings also has been the principle sources of current medical terminology and the base for the modern medicine onomastics containing magnificent terminologies. So, This prominent physician of Antiquity represents the landmark for the evolution of Western medicine. Much of the work is done in brining out his principles of treatment and management being even valid today but there is a lack in collection and systemic compilation of his Anatomical Pioneership. This work is one of its kind focussing only on gathering basic Structural, Topographical, Functional and Clinical Anatomy of Spine as contributed by ‘Father of Spine Surgery’ Hippocrates.

The Corpus Hippocraticum(Hippocratic Collection) - This "father of rational medicine” assimilated the accumulated knowledge of the past and his own work in many treatises. Detailed case histories, textbooks, lectures, research, notes and philosophical essays on various subjects in medicine, the popular Aphorisms and the eternal Oath which still holds good are compiled under the title Hippocratic Collection.^[2,3] Though it is considered as a single collection representing Hippocratic medicine, they vary in content, age, style, methods, and views practiced, therefore, authorship is largely unknown ^[7,8]. It is regarded as one of the

wonders of ancient learning revealing their knowledge of anatomy, physiology, their diagnostic methods based on sound reasoning and accurate observations. This fruitful collection has total of 60 treatises written over a period of 200 years or longer,^[7] most of them date between 450 BC and 350 BC. 2, About 270 BC, these manuscripts were first collected by Erasistratus for the Library of Alexandria, Afterwards, there have been several editions of this Corpus both in Greek and Latin. Rather, it remains the most influential text in the entire history of Western medicine. There is hardly any current medical speciality whose roots cannot be traced back to some Hippocratic concept. The Hippocratic writings include magnificent medical knowledge, covering almost every speciality of modern medicine.^[9] Hippocratic concepts have dominated medicine for many centuries and some of the methods of treatment found in these texts have been practiced unaltered upto recent times making him the most prominent physician of antiquity. Majority of the work is on musculoskeletal system and Hippocratic surgery focuses particularly on bones. The principles concerning the reduction of fractures and dislocations have formed the basis for the evolution of the orthopedics, and many of them are applicable even today. He defined the ethical principles guiding medical practice.^[6] Most of the medical and surgical subspecialties emerging in recent decades all have their roots in Hippocratic medicine, best few examples are Medical Ethics, Urology, Oncology and spine surgery.^[9,10] Even the manipulative procedure 11 can be traced, prominently known today to us as Chiropractic¹², Exercises^{13,14}, Massages, Physiotherapy etc. In his book On Joints, Hippocrates describes the anatomy and the diseases of the spine and suggests treatments for patients with spinal deformities.^[9] It is believed that such a systematic presentation of the anatomy and pathology of spine had never existed before the publication of this treatise.^[7,9]

In his musculoskeletal treatises, namely On Fractures, On Joints, On Places in Man, On Nature of Bones and Mochlikon, there are numerous discussions on Anatomy of spine and its clinical aspect reveals a broad experience on skeletal malformations and diseases providing detailed accounts for a variety of bone and joint injuries.^[7] He has earned the title of “father of spine surgery for his extensive reports on the segments and the curves of the spine, the vertebral anatomy, the disorders (kyphosis, scoliosis, concussion, dislocations, fractures) and their management by conservative methods or pioneering apparatuses (the Hippocratic ladder and board).^[9,15,16]

THE ANATOMY OF THE SPINE BY HIPPOCRATES –

The Anatomy of the Spine lies in scattered form in numerous treatises of Corpus Hippocratium namely On fractures, On articulations, Mochlikon, On Nature of Bones and On Places in Man but it became the first systematic presentation of anatomy and pathology of the spine in medical history.^[1,7] Human dissection was not routinely practiced (as Dissection of human bodies was prohibited in ancient Greece) but physicians derived their knowledge of anatomy from cadavers in battlefields, from observations of athletes

exercising in the gymnasiums and from dissections of animals making accurate observation and logical reasoning.^[2,7]

On the basis of his anatomical knowledge, Hippocrates created a copper copy of the skeleton which he offered to the oracle at Delphi ^[1,3,7]

Hippocrates insisted that every physician should study anatomy of spine very thoroughly and emphasized on good understanding of the spine and its functions. The Hippocratic writings contain numerous anatomical descriptions including the anatomy of the spine, spinal cord, certain congenital and acquired diseases associated with them.^[18] He not only described the normal and abnormal curvature of the spine but also described the vertebrae with their apophyses and the surrounding soft tissues (ligaments, discs, muscles, vessels, etc) and spinal cord.^[7,8]

In his treatise “On Nature of Bones” a detailed description of the segments of the human spine can be found ^[2]. He divided the spine into three regions or groups.

- a) The first region consisted of seven vertebrae, which he described as being above the clavicles (cervical vertebrae).
- b) The second region, he claimed, was the 12 vertebrae that articulated with the ribs (i.e., thoracic vertebrae).
- c) The third group comprises of 5 vertebrae between chest and the pelvis, (the lumbar vertebrae) he termed them "kencon", as this region is empty, contains no bones except for the lumbar vertebrae.^[7,9]

On the anterior side of the spine vertebrae are fitted to each other evenly in a sequence.

- 1) Each vertebra varied in size and had a process (apophysis) extending posteriorly with an epiphysis of cartilage on it. Tendons stretches from these epiphyses to the back. The vertebrae are bound together by a mucous and ligamentous connection. These connections extends from a layer of cartilage between the vertebrae to the spinal cord, he is referring to the intervertebral cartilage, its cartilaginous outer layer and the mucous center.^[9]
- 2) He described that spine is consisting of vertebrae connected by anterior and posterior nerves, with what he called “mucous connections”. In the Hippocrates era physicians were unable to separate tendons from ligaments and nerves. He called them nerves instead of ligaments. Infact All these anatomic structures were thought to be parts of the muscular system and were often embodied under the term "nerves", until Herophilus, the great anatomist of antiquity (3rd century B.C.), made the distinction between them.^[9]
- 3) Tendons extending vertically along the spine are attached to the vertebrae on the anterior, the posterior and the lateral sides of the vertebral column (they correspond to the anterior and the posterior longitudinal ligaments respectively).^[9] The intermediate space between the ribs and the spinous

processes is covered by muscles that extend from the neck to the attachment of the diaphragm. From this point to the sacrum, the spine has the attachments of the psoas.^[9]

- 4) In “On articulations and Mochlikon,” the normal curves of the vertebral column is described by Hippocrates in very coherent style.^[7] To explain the curvatures of the spine, he uses the term “ithiscolios,” which describes that on one hand, spine is curved in the sagittal plane but on the another hand it is straight in coronal plane. Lordosis of both the lumbar and cervical spine is a normal anatomical phenomenon. He even wrote that kyphosis of the thoracic spine gives a false perception, as the position of spinous processes appear to be higher than those in the overlying and the underlying sections of the spine ^[7,9]. Even stated that normal curvature and position of spine is maintained together by means of intervertebral discs, ligaments and muscles. ^[7]
- 5) The spine is in close contact with the major vessels of the thorax. In his writings he explains in detail about the route of the ‘artery’ and the ‘gross vein,’ which according to modern anatomy correlates to ‘Aorta’ and ‘Superior vena cava’ respectively. ^[9] In one of his writing ‘Epidemics’ he enumerates that ‘hepatitis vein’ before passing through the liver and the diaphragm ascends alongside the spine. Another vein, the ‘primitive vein’, before descending inferiorly to the diaphragm, divides into the lungs and ends near the spine. From this point, it divides forming a dense plexus around the spinal cord. Veins from different parts of the body bring the finest and purest part of blood to the spinal cord.^[9]
- 6) Ancient Greek medicine popularly believed that spinal marrow has a divine origin. He believed that in male, the spinal cord communicates with the kidneys and the reproductive organs through veins. This conception is expressed in ‘On Nature of Bones’ and in ‘On Places in Man’.
- 7) Although he did not describe the sacral vertebrae and the coccyx as parts of the spine, but he described sacrum to be arching posteriorly, forming a protective house for urinary bladder, internal reproductive organs and also for rectum. ^[9]
- 8) Hippocrates also mentions the function of the bones, particularly the spine is to maintain the erect position of man and to form the shape of the human body.^[7,9]

CLINICAL ANATOMY OF SPINE –

According to Hippocrates, Medicine should be practiced as a scientific discipline based on the natural sciences, keen observation, diagnosing and preventing diseases as well as treating them. He believed that physicians can predict the favorable or fatal outcome of a disease through their thorough understanding and accurate observations of anatomical structures, as a disease follows a natural course.^[4,8] For the first time in the history of mankind, he developed the concept of Pathology, combining philosophical search into cause and effect. He gave special emphasis to the prevention and prognosis of illnesses^[8] Also he was the first to collect accurate observations of patient and helped recognizing the abnormal anatomy and symptoms of each disease.^[5] Through his revolutionary study of the spinal structure and vertebrae, Hippocrates’s work

led to the pioneering identification of many spine-related diseases. Hippocrates considered knowledge of the spinal anatomy essential to physicians : "One should first get a knowledge of the structure of the spine; for this is also requisite for many diseases"^[1,7,18]. Later on eminent physician Galen (2nd century A.D.) also supported this principle of Hippocratic writings and criticized physicians for their ignorance of the structure of the spine. Hippocrates was the first to engorge himself in exploration of anatomical and pathological features of the human spine (On Fractures and On Articulations). This "father" of rational medicine assimilated the accumulated knowledge of the past and formed a diagnostic system based on clinical observation and logical reasoning. Clinical anatomy of the spine described by hippocrates can be broadly grouped under following categories are ^[7,9] :

1. Scoliosis
2. Kyphosis – Traumatic or Non traumatic
3. Concussion ("sisis")
4. Dislocations of the vertebrae
5. Fractures of the spinous processes
6. Congenital Variations
7. Spinal Cord Injury
8. Lumbar Disc Herniation
9. Sciatica

1) SCOLIOSIS - This term is from Ancient Greek, Skoliosis which means a bending or crookedness of a bodily part. Hippocrates is commonly credited for coining the term 'scoliosis' and he was the first to try treating this condition.^[19] It is found that in Hippocratic works, "scoliosis" is a general term applied to all kinds of spinal curvature. When the term is used as per modern meaning, little information can be gathered. According to Galen, there are evidences supporting this, as many treatises have been lost, in which there might have been references of scoliosis. For example in 'On Joints', Hippocrates plans to discuss scoliosis and its association with Chronic Lung diseases but this undertaking was never completed, at least in the Hippocratic texts preserved until today.^[7,9] Following is the brief account of scoliosis- Hippocrates describes two possible causes of this deformity –

a) The postures and positions patients are habitual to take in bed can even add to illness.

b) " Most of the affections, are due to gatherings on the inner side of the spine. The term "gatherings" refers to tuberculous abscesses^[8]. This also explains why Hippocrates intended to present scoliosis with chronic pulmonary diseases.

The ancient Greeks described the destructions of tuberculosis; they called it 'phthisis' (from the root phthoe) which describes a living body that shrivels with intense heat as if placed on a flame. Hippocrates identified this illness as the most common cause of illness of his era.^[20] In his treatise "On Places"

Hippocrates credits "flux", originating from the head (abnormal discharge of blood or other matter from or within the body.) to cause spinal tuberculosis. When this flux affects the spine, then the vertebrae become "flooded with dropsy". He postulates 'As a rule, these patients have fimata in the lungs(hard and unripened tubercles) which are responsible for contraction of neighbouring ligaments, resulting in curvature of spine.

In the second book of "Epidemics", Hippocrates describes a strange case of scoliosis of the cervical spine, which is related to severe sore throat. Patients initially show paralysis of the ipsilateral half of the face, mouth, uvula, and jaw. [9]

He was the first physician to describe spinal manipulative techniques using gravity, for the treatment of scoliosis. For tuberculous spondylitis, Hippocrates recommends a combination of diet, water-bathing, medication, cauterization and extension of the spine. [7]

KYPHOSIS : The term is from Greek word *kyphos*, 'a hump'. [21] **He classified kyphosis into two categories as Non-traumatic and traumatic.**

Non-traumatic or pathological - Various causes may develop kyphosis in the vertebrae. His description of spinal abnormalities and their effect on the lungs, the kidneys, and the bladder, as well as the formation of abscesses in the lumbar region and groin, which coexist is typical for tuberculosis, the most common infection of his era. He postulates. 'These patients have also, as a rule, hard and unripened tubercles [fimata] in the lungs, for the curvature and contraction is in most cases due to such gatherings, in which the neighbouring ligaments take part. Percivall Pott (1714 - 1788), an illustrious British surgeon, described spinal tuberculosis after 23 centuries of Hippocrates. Today, Tuberculous spondylitis is known as "Pott's disease". According to Hippocrates the prognosis is generally poor but well nourished patients usually live longer. [7,9]

Hippocrates further divided Tuberculous spondylitis into two categories. [7,9]

Ist category - formation of curvature of the spine formed above the attachment of the diaphragm. Most of the cases that belong to this **first category are incurable**. [7] The anatomical deformities are prominent clinically in these patients. The characteristic features are enumerated by Hippocrates as following –

- 1) The ribs grow forwards but do not enlarge in breadth so instead of becoming broad the chest becomes pointed.
- 2) The patients also get short of breath and hoarseness of voice, as the cavities which receive and send out the breath have contracted resulting of smaller capacity.
- 3) They also hold the neck concave at the great vertebra ie. axis or at the seventh cervical vertebra, so that the head may not be thrown forwards. Since this vertebra inclines inwards it causes great constriction in the oesophagus or throat.

- 4) When this bone inclines inwards, it causes difficult breathing even in undeformed persons, until it is corrected back.
- 5) Consequently, in such individuals larynx becomes more projecting than the healthy.^[9]

2nd category - If the curvature is situated below the level of the diaphragm, the **prognosis is better**^[7] The resolution may occur by prolonged dysentery leading to elimination of the curvature. Spontaneous resolution also may occur, when varicosities arise in the groin or ham (the back of the thigh or the thighs and buttocks).^[9] The association of tuberculous spondylitis with the formation of the varicosities is unclear. Galen offers a possible explanation for these kind of resolutions. He assumes that pathogenic humors are drained from the pulmonary abscesses into the abdominal veins resulting in obstruction of the veins, finally producing varicosities. Similarly dysentery will develop if the humors are drained into the bowel. The kidneys and the bladder tend to be affected by tuberculosis when the disease is localized at the segments of the spine below the diaphragm. Many chronic and hard-to-cure abscesses are often formed in the lumbar region and the groins. There is also a delay in the growth of hair in the pubes, the chin and patients lack in fertility. These also disturb the skeletal anatomy especially of hips and spine. The hips are more atrophied in such cases in comparison with the cases having high curvatures. Yet the spine as a whole is longer in these cases than in high curvatures.^[9]

Developmental Anatomy - The consequences of tuberculosis on the anatomical development of the bones of spine depends mainly on the age of the patient at the onset of the disease. Patients who have not reached puberty have more disproportionate type of skeletal growth. He states "When hump-back occurs in children before the body has completed its growth, both upper and lower limbs develop normally to attain their adult size but the trunk will not grow equivalently esp. at the spine and remain defective."^[7, 9]

The disease has a more benign course in adults, because the growth and anatomical development of the individual has already been completed - When abnormal curvature occurs after the complete bodily growth, its occurrence produces a clear catastrophe, Some of the similar symptoms found in younger patients presents with more or less intensity as time goes but generally they are all less destructive.^[7,9]

Other causes of kyphosis are also mentioned in Hippocratic treatises apart from tuberculosis - a) congenital or acquired bilateral dislocation of the hip.^[2]

- b) old age or fatigue^[3]
- c) Epilepsy, has been mentioned as sacred disease caused by excess of phlegm (one of the four humors of the human body) is can be associated with kyphosis.
- d) on account of pain,
- e) even in healthy persons, depending on its nature and use. ^[7, 9]

Traumatic kyphosis : This kind of kyphosis usually occurs when the patient falls on his shoulder or his buttocks. The spinal cord usually is not injured on such occasions. This, as Hippocrates argues can be explained by the mechanism of the spinal injury . "In the curvature, one of the vertebrae necessarily appears

to stand out more prominently, and those on either side less so. It is not that one has sprung out to a distance from the rest; but each gives way a little, and the displacement taken altogether seems great. This is why the spinal marrow does not suffer from such distortion, because the distortion affecting it is curved and not angular.”^[7,9]

Hippocrates concludes that the clinical course is generally mild and major complications are rare: “[Deviations] in the form of a hump are not as a rule injuries which cause death, retention of urine, or loss of sensation”. He does not attribute low morbidity or mortality to the fact that the spinal cord usually remains intact. In fact, he implies that his reason for this low morbidity is that the bowels and the bladder are not obstructed : "for external curvature does not stretch the ducts which pass down the body cavity, not does it hinder free flow".^[7,9]

From his unmatched work in the field of orthopaedics, Hippocrates created three pieces of equipment to treat spinal ailments: namely the **Hippocratic ladder**, the **Hippocratic board**, and the **Hippocratic bench**.^[7]

Hippocrates strongly recommends the board, as it is the most efficient method for the correction of spinal deformities. To support his recommendation, Hippocrates outlined the advantages of the method, First, all of the forces are exerted "**in accordance with nature**; for the pressure forces the protruding parts into place, and the extensions according to nature draw as under the parts that have come together. Compliance with the laws of nature is one of the most important principles of Hippocratic medicine. Nature is the healer of human diseases, whereas the physician is its assistant. Another advantage to the Hippocratic board is the fact that the physician can easily control the forces exercised on the spine. Finally, the method is so powerful that either traction or pressure alone is enough to accomplish reduction. However, it is difficult to perform extension at the neck, because the patient might suffocate:

3) CONCUSSION OF THE SPINE [Sisis] - When a compression force strikes the spine along the line of the vertebral bodies, major problems tend to occur "patients land into the complications of paralysis of upper and lower limbs, loss of sensation in the body and retention of urine". This holds good even today according to modern scientific knowledge, indeed, bursting fractures of the vertebrae are caused by a high energy axial load are usually unstable and quite often result in neurologic involvement.^[9]

4) DISLOCATIONS OF THE VERTEBRAE - Many concepts of the current practice were sufficiently approached by Hippocrates without the help of modern technology. The concept of fracture, dislocation causing complete paralysis (narcosis) as named by Hippocrates, could result from the displacement of a vertebra or bone fragments after a fracture of the spine. The reduction of such an injury is difficult and the possible injury of the spinal cord when it is not initially damaged, leads to poor results. The damage to the spinal cord that has been pressed but not cut can be restored automatically.

Anterior or posterior luxation of one or more vertebrae is not a usual incident "a great thrusting out and rupture of the articulation of one or more of them (i.e., the vertebrae) does not very often occur but is rare, Such injuries are hard to produce.

- 1) Anterior dislocation of the vertebrae takes place either when a heavy object falls on the spine or after falling from a height. Even on such occasions, the injury is most often restricted to the spinous processes because it is very difficult for the vertebrae to overcome the resistance of the spinal ligaments and interconnecting joints and deviate anteriorly. Hippocrates stresses the consequences of this rare kind of luxation are dramatic. The spinal cord is severely damaged and most of the patients die. Those who survive show serious neurologic symptoms. "The vertebrae in springing out would press on the cord even if it did not break it. The cord, then, being compressed and intercepted, would produce complete narcosis of many large and important parts".^[9] In such cases, the retention of urine and faeces is more frequent than in outward curvatures; the feet and lower limbs as a whole usually lose heat and these injuries are more generally fatal. Even if they survive, they are more liable to incontinence of urine, and have more weakness and torpor of the legs; while if the incurvation occurs higher up, they have loss of power and complete torpor of the whole body.^[9] **He even observed that injury to the spinal cord resulted in paralysis and that injury to one side of the cord resulted in deficit on the same side.**^[23]

In *On Joints*, Hippocrates suggests transabdominal repair of anterior dislocation of the vertebrae. Although he clarifies that this procedure can be performed only on corpses, this idea was virtually the first suggestion for surgical management of spinal diseases in history. The reason for Hippocrates' reluctance to perform such an operation on a living patient is obviously the great risk that such a major operation might have involved in ancient times.^[9]

- 2) Posterior dislocations of the vertebrae are uncommon. They occur either after a serious abdominal injury or after falling from a height. As a rule, these luxations are fatal.

As a general rule, Hippocrates favored early management of dislocations. Reduction is accomplished more easily and is also less painful for the patient but if delayed swelling sets in causing difficulty in reduction.

5) FRACTURES OF THE SPINOUS PROCESSES - Fractures of the spinous processes heal rapidly and with no complications. The reason Hippocrates mentions these types of fractures is that many ignorant practitioners mistook them for anterior dislocations. They were deceived by the fact that the projecting process and the vertebral body feel rounded on palpation. Thus, they thought that the projecting ridge along the spine represented the vertebrae themselves. Whenever there is a region is hollow and soft on palpation, giving the impression that the vertebrae involved have been displaced anteriorly.^[9]

The fractures-dislocations were treated conservatively with the patient in supine position and with application of pressure with a pig's urinary bladder-filled with air, having the area of injury in hyperextension or the placement of the injured patient in prone position and the application of slight traction

with belts, with a simultaneous pressure on the curve for the correction of the deformity, a method that was applied for more than 1000 years ^[18]

6) VARIATIONS : He also seems to be aware of the variations in the number of vertebrae. For example, he points out that supernumerary vertebrae. For example he points out that supernumerary vertebrae may exist either in the cephalic or the caudal end of the spine ^[2].

7) SPINAL CORD INJURY - Hippocrates described the spinal shock of an incomplete injury, which could be addressed, if the blood supply to the spinal cord was maintained or restored (this means that he knew which vessels better supplied the spinal cord. Hippocrates conceived the idea that some injuries can be treated automatically or at least be improved by conservative treatment. He used to emphasize that the difficulties of a very demanding process and the fact that nature can give a very good result, because injuries can do well by themselves, introducing the concept of automatic fusion between vertebral bodies and the automatic improvement of the neurologic status .

8) LUMBAR DISC HERNIATION - The ancient Greeks also suspected a relationship between spinal afflictions and lower extremity symptoms and developed a more naturalistic understanding. Hippocrates was probably the first to mention sciatica and low-back pain. He observed the relationship among sciatica, an antalgic posture and claudication. Sciatica was thought more prevalent during the summer and fall because the sun could “dry up” necessary joint fluid. Hippocrates prescribed rest, massage, heat, dietary changes, and music. ^[24,25]

9) SCIATICA - Pain in sciatic distribution was known and recorded by ancient Greek and Roman physicians but was attributed to diseases of the hip joint. Hippocrates was the first physician to use the term ‘sciatica’, deriving from the Greek ischios, hip. Pain in the pelvis and leg was generally called sciatica and attributed to a diseased or subluxated hip: After protracted attacks of sciatica, when the head of the bone [femur] alternately escapes from and returns into the cavity, an accumulation of synovia occurs. Hippocrates noticed symptoms which were more frequent in summer and autumn. In autumn many maladies which occur in summer prevail, besides quartan and erratic fevers, affections of the spleen, dropsy, consumption, strangury, dysentery, sciatica, quinsy, asthma, volvulus, epilepsy, mania, and melancholy. He treated the condition with warmwater applied to the painful area, fumigations, fasting, followed by laxatives and ingestion of boiled milk of the female ass. ^[26]

DISCUSSION -

Hippocrates expounded on the structural, topographic and functional anatomy of Spine and associated Clinical situations which became the root source for modern anatomic descriptions. He also recommended on the importance of the anatomy and health of Spine to physicians for effective treatment of various illnesses. His work On The Spine provides the reader with numerous observations that are still of value today. The Anatomy of spine and its applied concepts contributed by Hippocrates is an example of

how accurate observation and logical reasoning can compensate for the lack of medical technology, leading to accurate conclusions. In his books Mochlicon, On Nature of Bones, On Places in Man and particularly in, On Joints, Hippocrates has recorded his knowledge and experience concerning the human spine. His amazing description of the anatomy of the spine contains information, with the exception of blood supply, is correct by today's standards. Hippocrates is the first physician to give an account of spinal diseases and to describe the clinical features of tuberculous spondylitis. He was first to design the devices for correction of spine problems and the same principles used then traction, extension and pressure are applied even today to correct spinal deformities. In hippocratic era, surgical art was on a level with fine craftsmanship, and good technique was absolutely essential to the good physician, all that was not at all possible without the knowledge of Anatomy. He has left a valuable heritage of knowledge and methodology, which extends to almost all branches of modern medicine. Hippocrates has taught us how to achieve medical wisdom through accurate clinical observation, without the aid of any modern instruments. The modern medical professionals working in departments of Anatomy, Pathology, Orthopaedics, Surgery, Emergency medicine and Trauma should be aware of such intellectual Pioneership of Father of medicine who are using his comprehensive system of knowledge and principles everyday in practice.

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