

TUBERCULOSIS OF THE SPINE

AN-ESSAY

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَقَدْ رُجِّعَ زَوْجِي سَلَامًا

مَدَامَتُكَ الْفَلِيمُ



TO
MY PARENTS
AND
MY WIFE MANAL

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INTRODUCTION

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Bone and joint tuberculosis is part of asystemic infection, it is a local manifestation of a general disease. Spinal tuberculosis is the most dangerous form of bone and joint tuberculosis due to the complexity of the spinal anatomy, the delicacy of the cord and the susceptibility of its vasculature.

Tuberculosis of the vertebral column was first described by Percival Pott in 1779 after whom the disease was named, it accounts to 30 - 45% of tuberculous involvement of bone and joint. It is a slowly developing disease, characterized by pain, spinal deformity and occasionally paralysis, it occurs in early childhood. The majority of cases startring between the age of 3 and 5. In recent years with introduction and use of new antituberculous drugs the age incidence shifted upward (Mercer, 1973). In order of frequency tuberculosis affects the spine, the hip, the knee then comes other joints. In the spine the first lumbar vertebra is the most affected segment as noted by Hodgson ('Hodgson, 1975).

Incidence:

The disease become rare in countries where adequate

housing, nutrition and good sanitary conditions are provided, but still prevalent in the densely populated parts of Asia and Africa and parts of South America (Hodgson, 1975). It is most prevalent in South East Asia constituting a major health problem and management regime challenge. Spinal tuberculosis is still much commoner than many of the tumours that have received abundant attention in research and in publications (Griffiths, 1979) though tuberculosis is a preventable disease.

Historical Review:

Spinal tuberculosis is a disease deeply rooted in the history of medicine, it has existed for at least 5000 years. Mummified remains from northern Egypt dating back to 3400 B.C. have provided unequivocal evidence of its presence.

Tuberculosis of the spine first described by Percival pott in 1779. He thought that tuberculosis paraplegia was due not to cord compression but to a distemper of the area (Rang, 1966) and he was the first to associate spinal deformity with the paralysis that is often seen with this disease. At the beginning of this century, tuberculosis was the leading cause of death in Western societies.

With the advent of effective combination chemotherapy in the early 1950, the mortality rate among patients with spinal tuberculosis decreased from approximately 10% to 3%. However, the rate of paraparesis remained constant at approximately 20%.

The history of the treatment has been varied over the past 2000 years, and falls into two groups: Conservative and operative. Up to 1870, the treatment has been mainly conservative. Pott, and later Charcot applied a red hot iron into the abscess in cases of paraplegia to drain the abscess in an attempt to reduce pressure on the spinal cord (Hodgson, 1975).

Although chemotherapy remains the mainstay in the treatment of tuberculous spondylitis, surgical procedures still play a role. Radical debridement and anterior spinal fusion has been advocated by Hodgson, while others as Konstam and Blesovisky have claimed excellent results with the use of chemotherapy alone.

New antituberculous drugs have improved the prognosis as they are more effective on the Tubercle Bacilli, but still have not solved all the problems. Samuell Turek, in 1977 believed that in a disease as tuberculosis, the term "cure" under conservative

treatment is best avoided and the diseased tissue must be excised by radical measures under chemotherapeutic coverage (Turek, 1977) to achieve a cure.

AIM OF THE WORK

The aim of this work is to analyze spinal tuberculosis as a problem that used to defy surgeons and to assess the results of the various forms of its management and their merits.

ANATOMY

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The backbone forms the central axis of the skeleton. It supports the skull and gives attachment via the ribs to the thoracic cage and by way of this cage to the pectoral girdle and upper limbs. By way of the pelvic girdle it strongly articulates with the lower limbs to serve the functions of support and propulsion. The backbone is strong and flexible and contains in its canal the spinal cord to which it gives great protection from external violence.

The backbone made up of 33 vertebrae forming the movable presacral section of the spine, and five fused elements form the inflexible sacrum that articulates with the pelvic girdle. Caudal to the sacrum four or five irregular ossicles make up the coccyx. In 10% of cases there is a transitional L4 or SI vertebra.

The vertebral column has several curves, the cervical and lumbar curves convex forwards. The thoracic curve is concave forwards, the sacral concavity faces downwards and forwards. (Fig. 1)

General Characteristics of vertebrae:

The vertebral column is formed of 3 pillars, the

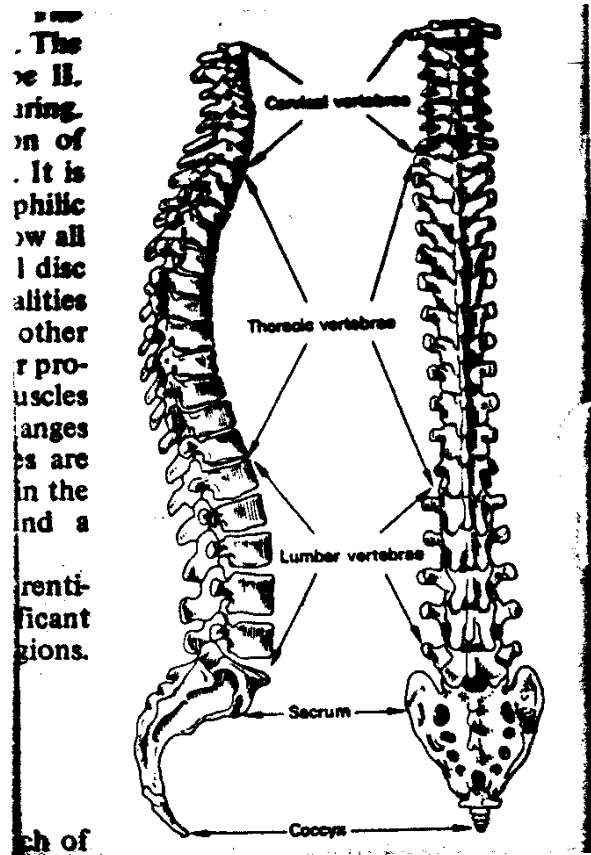


Fig 1: The vertebral column (Curves)

anterior pillar is formed by the bodies of vertebrae and discs, the lateral pillar is formed by the pedicles and facet joints, and the posterior pillar is formed by the neural arches and the attached ligaments. The direction of the facets conforms with and determines the nature of the movement possible between adjacent vertebrae, also the size and shape of the vertebral bodies vary to serve the functions of load transmission, mobility and stability.

The spinal canal becomes progressively smaller from above downwards, it is closed anteriorly by the vertebral bodies, the discs and the posterior longitudinal ligament, and posteriorly by the laminae and the ligamenta flava, laterally by the pedicles which are narrower than the height of the vertebral bodies. Thus, a series of intervertebral foraminae is produced between adjacent pedicles. Each intervertebral foramen is bounded in front by the lower part of the body of a vertebra and its adjacent disc, and bounded behind by the capsule of the synovial joint between adjacent neural arches. The intervertebral foraminae lodge the spinal nerves and posterior root ganglia and give passage to the spinal arteries and veins (Last, 1980) (Fig. 2-3).