CHAPTER (VI)

- Summary & Conclusion -

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- Pathological changes in the diameter of the lumbar spinal canal may be associated with low back pain. The assessment of the size of the canal is, therefore, an important diagnostic procedure. The transverse diameter of the canal is a reliable index for the assessment of the siz of the canal. It is necessary to have base line values of this diameter for use in diagnostic work . Age, racial, and ethnic variations in the shape and dimensions of the canal were reported . Published reports have given tables of the norms for different populations.

- This work entailed the study of the shape of the lumbar spinal canal , its transverse diameter , and other relevant dimensions : the anteroposterior diameter of the canal , pedicle thickness , and width of vertebral bodies in normal adult Egyptians .

- The correlations between these dimensions and the transverse diameter have been studied . Also, a study has been made of these dimensions and the variables of sex , weight , height and age .

- The sample consisted of 100 adults ; 50 males and 50 females , and was classified into 5 age groups . Cases with clinical lumbar symptoms were excluded . Measurements were made on anteroposterior and lateral plain radio graphs of the subjects .

- The results showed that the mean transverse diameter increased steadily from

L1 to L5, being larger in males at all segmental levels .

- The minimum transverse diameter was 17 mm while the maximum was 51.88 mm .

- The shape of the lumbar spinal canal was classified into 3 morphological types , and 7 sūb-types . The study showed that the shape of the lumbar spinal canal is not a significant pathogenic factor .

- The anteroposterior diameter of the lumbar spinal canal showed a steady narrowing from the level of L1 down to L3 . This was followed by widening at L4 and L5 . This hour-glass shape of the lateral view of the canal was preserved in both sexes , but the anteroposterior diameter was narrower in females than in males .

- The results of measurements of the transverse and anteroposterior diameter of the lumbar spinal canal were compared with the results of earlier reporters in different populations. The comparison confirmed the view that the dimensions of the lumbar spinal canal were subject to racial variations.

- The mean width of the vertebral body increased steadily from L1 to L5 in both sexes, and was larger in males than in females at all levels .

- The canal / body ratio in males was nearly 0.6 at L1 to L3 , while it was nearly 0.5 at L4 and L5 . In females , the corresponding ratios were about 0.6 at L1 to L4 , while they were about 0.5 at L5 level .

- There was a direct relation between the transverse diameter of the canal and the

width of vertebral body .

- The mean of the "sum" of pedicle thicknesses was larger in males than in females , and there was no direct relation between the pedicle thickness and the transverse diameter of spinal canal at the corresponding vertebral levels .

- The results of this study could not confirm the view that the shape and dimensions of the lumbar spinal canal vary with age .

- Multiple regression analysis of both , the transverse and anteroposterior diameters was performed against the variables : age, weight , and height .
Thus, the predicted values of the transverse and anteroposterior diameters of the lumbar spinal canal of an individual could be calculated from his age, weight , and height .