

DIABETES MELLITUS AND ITS ROLE IN CAUDAL REGRESSION SYNDROME

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ABSTRACT

BACKGROUND

Caudal regression syndrome also called as sacral agenesis or hypoplasia of the sacrum is a congenital disorder in which there is abnormal development of the lower part of the vertebral column¹ due to which there is a plethora of abnormalities such as gross motor deficiencies and other genitor-urinary malformations which in deed depends on the extent of malformations that is seen. Caudal regression syndrome is rare, with an estimated incidence of 1:7500-100,000.

The aim of the study is to find the frequency of manifestations and the manifestations itself.

METHODS

Fifty patients who were pregnant and were diagnosed with diabetes mellitus were identified and were referred to the Department of Medicine.

RESULTS

In the present study the frequency of manifestations of caudal regression syndrome is 8 in 100 diagnosed patients.

CONCLUSION

The malformations in the babies born to diabetic mothers are high in the population of costal Karnataka and Kerala.

KEYWORDS

Diabetes Mellitus, Caudal Regression Syndrome, Sacrum, Lumbar Region.

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INTRODUCTION: Caudal regression syndrome also called as sacral agenesis or hypoplasia of the sacrum is a congenital disorder in which there is abnormal development of the lower part of the vertebral column¹ due to which there is a plethora of abnormalities such as gross motor deficiencies and other genitor-urinary malformations which in deed depends on the extent of malformations that is seen.

This condition exists in a variety of forms, ranging from partial absence of the tail bone regions of the spine to absence of the lower vertebrae, pelvis and parts of the thoracic and/or lumbar areas of the spine. In some cases, where only a small part of the spine is absent, there may be no outward sign of the condition. In cases where more substantial areas of the spine are absent, there may be fused, webbed, or smaller lower extremities and paralysis. Bowel and bladder control is usually affected.

Sacrum is a flat bone which is triangular in shape and is actually formed by the fusion of five sacral vertebrae. It articulates with the two hip bones, it also articulates with the fifth lumbar vertebra and the coccyx. The spines of the vertebra fuse posteriorly but there is a hiatus at the lower end of medial crest because of the failure of fusion of the

lamina of the fifth sacral vertebra.¹ But there is no hard and fast rule saying that the hiatus should be at the fifth sacral vertebra, sometimes it may be higher up when the higher sacral vertebra will fail to fuse. In rare incidences there might be complete non-fusion of the median crest.²

Diabetes is the most common disease in the modern life. Diabetes is a metabolic disease and the effects of diabetes can be drastic in the new born. Incidentally lower backache is the most common complaint in the diabetes. Sacralisation, abnormal hiatal opening in some incidences sacralisation of lumbar vertebra seems to be the most common cause for backache³ but the relation of diabetes with sacralisation is not established. Clinically the hiatus is very important because it is used for epidural analgesia.⁴ But if these kinds of anatomical defects are encountered then it might lead to the total failure of epidural analgesia procedures.^{5,6} In fact the success of these procedures depends on the anatomical normalcy of these bones.⁷

People with caudal regression syndrome may have abnormal twisting (malrotation) of the large intestine, an obstruction of the anal opening (imperforate anus), soft out-pouchings in the lower abdomen (inguinal hernias), or other malformations of the gastrointestinal tract. Affected individuals are often constipated and may experience loss of control of bladder and bowel function.

Caudal regression syndrome is rare, with an estimated incidence of 1:7500-100,000.^{8,9}

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AIMS AND OBJECTIVES:

1. To find out the frequency of caudal regression syndrome in diabetes mellitus mothers.
2. To find out other complications associated with the syndrome.

MATERIALS AND METHODS: Fifty patients who were pregnant and were diagnosed with diabetes mellitus were identified and were referred to the Department of Medicine. The patients were followed up and the ultrasonography was conducted in the first trimester and then they were further followed till the end of the third trimester till the mother delivered.

RESULTS: In the present study the frequency of manifestations of caudal regression syndrome is 8 in 100 diagnosed patients.

Manifestation	Frequency
Complete sacral agenesis	1
Lumbar malformations	0
Motor deficiencies	1
Abnormalities in the limb	4
Malrotation of gut	1
Imperforate anus	1

Table 1: The frequency of manifestations seen in the offspring of diabetic mothers

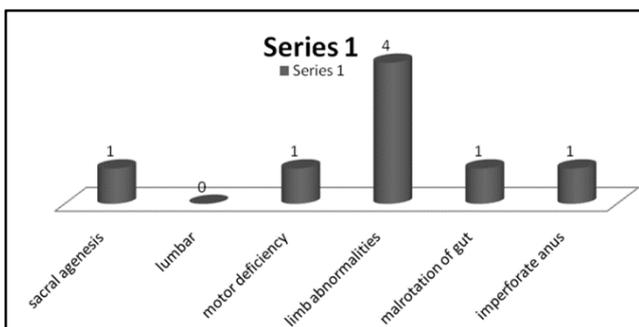


Fig. 1

DISCUSSION:

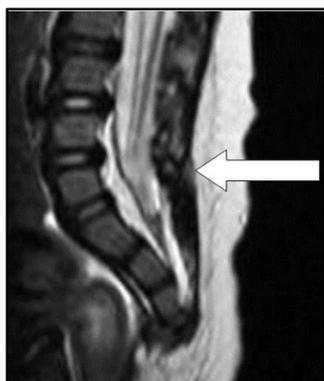


Image 1: Incomplete caudal part of spine

The sacrum is developed by the fusion of five sacral vertebrae. The embryological development is very complicated and any deviation from the normal causes drastic effects. Since the embryologic development is complicated, and diabetes is a metabolic disorder which interferes with any of the metabolic pathways the deformities are very easily formed then previously taught.

The knowledge of the malformations is essential. In clinical practice it is very important as the outcome of the birth of a malformed baby has to be explained to the parents. The agenesis can be easily found by ultrasonography in the first trimester and can easily be controlled. In the present study the frequency of malformations found is higher when compared to the other studies. The diabetes also is common in the affluent society. These malformations are to be borne in mind to avoid unnecessary economic burden over the parents.

CONCLUSION: The malformations in the babies born to diabetic mothers are high in the population of coastal Karnataka and Kerala.

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