

Case Report

ECTOPIC ADRENAL RESTS IN TESTIS - A CASE REPORT

***Sangeeta M.¹, Raja Parthiban² and Shiny Vinila B.H.¹**

¹*Department of Anatomy, Sri Devaraj Urs Medical College, Kolar, Karnataka, India*

²*Department of pathology, MVJ Medical College & Research Hospital, Hoskote, Karnataka, India*

**Author for Correspondence*

ABSTRACT

Adrenal gland has a dual embryological origin, Adrenal cortex from coelomic epithelium of the urogenital ridge & medulla from neural crest cells. Since testes & adrenal cortex derive from the same urogenital ridge, adrenal tissue with descending gonads may migrate in early embryonic period. Although most often ectopic tissue undergoes atrophy, in some cases (1%) it may persist as adrenal rests. We report a case of adrenal rest in upper pole of testes. The clinico pathological findings & embryological hypothesis with brief review of literature has been discussed in this paper.

Keywords: *Ectopic, Supra Renal, Aberrant*

INTRODUCTION

The suprarenal glands lie immediately superior and slightly anterior to upper pole of either kidney. The glands are surrounded by connective tissue containing perinephric fat and separated from the kidney by a small amount of fibrous tissue. Ectopic adrenal tissue in testis is a rare entity. Morgagni first described them in 1740 along the spermatic cord (Anderson *et al.*, 1980). Overall incidence of ectopic adrenal tissues in different studies varies from 1% - 9.3% in patients who underwent groin surgical exploration (Roberto *et al.*, 2006). They may be found near organs that were in the neighborhood of suprarenal glands during embryonic origin and have moved away in the process of development. Here, we report a case of ectopic suprarenal gland in the upper pole of testes. This is of clinical importance because hyperplasia of adrenal tissue may occur post adrenalectomy for Cushing's syndrome or metastatic cancer. Adrenal insufficiency may occur when heterotopic adrenal tissue may be removed during nephrectomy (David *et al.*, 1968). Malignant transformation may occur in the heterotopic tissues.

CASES

A 21 year old male was brought to Surgery OPD with complaints of pain in the Right Iliac fossa for 4-5 days. On examination there was tenderness in Right Iliac fossa & no palpable mass was found.

Investigations

Ultrasound abdomen and pelvis revealed an oval echogenic structure below the inferior pole of right kidney measuring 2.2X1.4X1.5cms. High resolution ultrasound and Doppler of scrotum revealed that right testis, epididymis were not seen in scrotal sac and inguinal region. CT scan of Abdomen showed undescended right testes in the anterior part of pelvis medial to right iliac vessels. Semen Analysis revealed a total sperm Count – 26 million, PH – 8.5, Abnormal forms – 1.5%, Pus cells – 4-5, Motility - Actively progressing – 50%, Sluggish – 5%, Non-motile – 45%. The oval echogenic mass was sent for histopathological examination.

Gross Appearance: Measurements 2.2X1.4X1.5cms. Bright yellow soft nodules clearly different in color & consistency from the fat were seen in the lower pole.

Microscopy: Testicular tissue and Suprarenal tissue with medulla absent and no focal calcifications seen.

DISCUSSION

Ectopic adrenal tissue is more common in males. Some have also been reported along the female genital tract (David and Schecter, 1968). They are usually associated with –Undescended testis, inguinal hernia, Hydrocele, diagnosed usually in pediatric age group. They are usually found incidentally during surgery. Ectopic or accessory adrenal tissue known as adrenal rest tissue occur when fragments of tissue break off

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during development. They may contain cortical tissue only or both cortex and medulla depending whether the fragments break off before or after the migration of neural crest cells into cortex which forms the adrenal medulla. The more distant adrenal tissue which migrates with the developing gonad contains cortex only (Anderson *et al.*, 1980). In fishes the cortex and medulla occur normally as separate organs. In higher animals there is an increasingly closer association between the two parts until the climax is reached in mammals where the cortex encloses the medulla. Ectopic adrenal tissue usually atrophies so that it occurs in 1% of adults only.



Figure 1: Gross appearance showing ectopic adrenal tissue in lower pole of testes

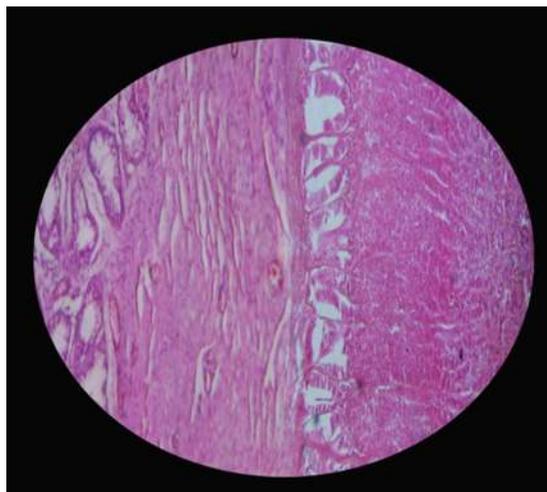


Figure 2: Microscopic picture showing adrenal and testicular tissue

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Embryological Basis and Clinical Significance

The adrenal gland has a dual embryonic origin. The adrenal cortex arises from the coelomic mesoderm of the urogenital ridge and the medulla from neural crest tissue since adrenal cortex and gonads both arise from genital ridge, in early embryogenesis adrenal cortical tissue can migrate with the developing gonad. Adrenal rests have been described in the retroperitoneum, broadligament, ovaries, inguinal region and testes (Roberto *et al.*, 2006). They can occur along the path of testicular descent. Adrenal rests within the testes occur in 7.5%-15% of neonates and regress in early infancy (Elmer, 1962). Pathological conditions may develop in this ectopic tissue. Normann *et al.*, (1971) reported a case of neuroblastoma in two ectopic glands in an eleven month old child (Normann *et al.*, 1971). Carcinomas have occasionally been reported (Anderson *et al.*, 1980). Compensatory functional hypertrophy after destruction or removal of normal adrenal glands has been reported. David reported a death from adrenal insufficiency following hepatic resection, the liver containing heterotopic adrenal gland (Anderson *et al.*, 1980). Ectopic adrenal rest in appendix may mimic a carcinoid tumor. Testicular adrenal rests in testis may cause azoospermia due to obstruction of seminiferous tubules (Elmer, 1962).

Conclusion

Clinical implications of these rests are essentials in surgical approach to a patient. Few authors cite a compensatory functional hypertrophy of these tissues if both adrenals were removed. With these ectopic tissues the risk of developing malignant diseases is high. Hence even though incidentally found surgical removal should be contemplated.

REFERENCES

- Anderson JR and McLean R (1980).** Ectopic adrenal tissue in adults. *Postgraduate Medical Journal* **56** 806-808.
- David Chas and Schechter MD (1968).** Aberrant adrenal tissue. *Annals of Surgery* **167**(3) 421-426.
- Elmer V and Dahl (1962).** Aberrant adrenal cortical tissue near the testes in human infants. From the section of Pathology, Mayo Foundation, Rochester, Minn **40**(5) 587-598.
- Keith LM and Pertsaud TVN (2009).** Development of Suprarenal glands. In: *The developing Human Clinically oriented anatomy*, 8th edition (Elsevier Publishers) 260.
- Normann T, Havnen J and Mjølnerod O (1971).** Cushing's syndrome in an infant associated with neuroblastoma in two ectopic adrenal glands. *Journal of Pediatric Surgery* **6** 169.
- Roberto Mendez and Manuel G et al., (2006).** Ectopic adrenal tissue in the spermatic cord in pediatric patients: surgical implications. *International Brazilian Journal of Urology* **32** 202-7.