

**A CASE REPORT ON LEYDIG CELL HYPERPLASIA OF OVARIES: A RARE AND INCIDENTAL FINDING WITH ADENOMYOSIS & ENDOMETRIAL POLYP****Dr. Gokula Kannan A. P.\*<sup>1</sup> and Dr. Ponnuswamy Karkuzhali<sup>2</sup>**<sup>1</sup>Post Graduate, Department of Pathology, Sree Balaji Medical College & Hospital, Chennai, India.<sup>2</sup>Professor & Head, Department of Pathology, Sree Balaji Medical College & Hospital, Chennai, India.**\*Corresponding Author: Dr. Gokula Kannan A. P.**

Post Graduate, Department of Pathology, Sree Balaji Medical College &amp; Hospital, Chennai, India.

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**ABSTRACT**

A report on an unusual case of ovarian Leydig cell hyperplasia along with adenomyosis & endometrial polyp. Ovarian Leydig Cells are analogous with testicular Leydig cells. A 65 year old woman presented with chief complaints of abdominal pain. Total abdominal hysterectomy was done & histopathological study was done, in which the ovaries showed islands of Leydig cells with abundant eosinophilic cytoplasm and dark staining nuclei surrounded by ovarian stroma. As to our knowledge this appears to be the first report of an incidental finding of Stromal Leydig cell in the ovaries associated with adenomyosis & endometrial polyp.

**KEYWORDS:** Leydig cell hyperplasia, Leydig cells of ovary.**INTRODUCTION**

Ovarian Leydig Cells are analogous with testicular Leydig cells. Leydig cells typically occur in the ovarian hilus, where they are referred to as *hilus cells*, rarely they occur in non-hilar locations (within the stroma), that are referred to as *Stromal Leydig cells*.<sup>[1]</sup> In non-pregnant women, Leydig cell hyperplasia most frequently occurs against a background of stromal hyperplasia.<sup>[2]</sup> The following is a case report of incidental finding of Stromal Leydig cell Hyperplasia involving both the ovaries in a postmenopausal woman with adenomyosis & endometrial polyp.

**CASE-REPORT**

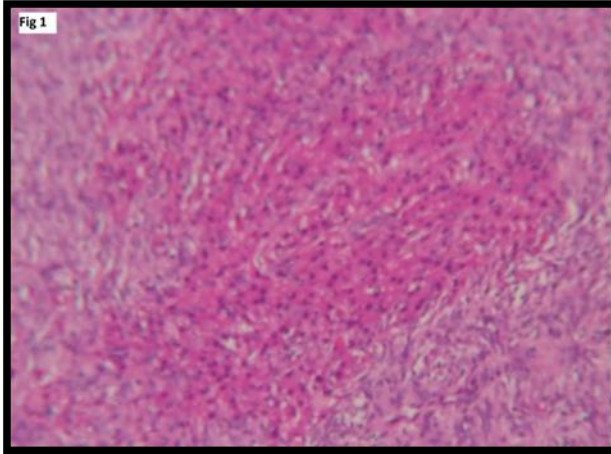
A 65 year old woman presented with chief complaints of abdominal pain. On examination she had mass in the lower abdomen. She attained menopause sixteen years back and her menstrual history was normal. There was no history of postmenopausal bleeding and any other complains. Endometrial sampling was done and histopathologically it showed complex hyperplasia with atypia. On ultrasound endometrium measured 9mm. The patient was subjected for total abdominal hysterectomy. Uterus with bilateral tubes & ovaries was sent for HPE.

**GROSS DESCRIPTION**

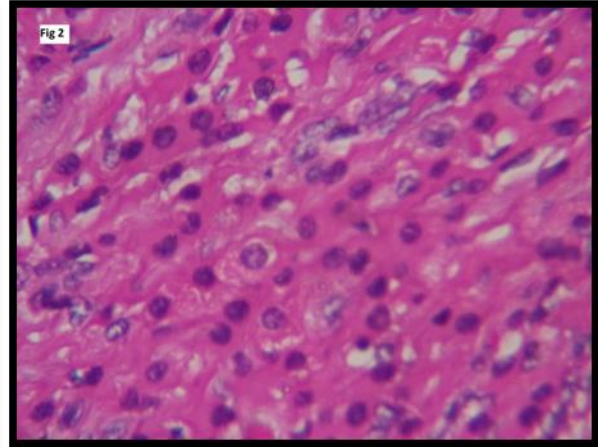
Partially cut open total abdominal hysterectomy specimen with bilateral salpingo oophorectomy was received. Uterus measured 9 x 5 x 2 cm. Cervical canal measured 3cm. A polypoidal lesion arising from the endometrium measuring 2x2cm. Both the tubes measured 3 cm in length. Right ovary 2x2cm. Cut surface of right ovary shows small white multiple nodules. Left ovaries measured 2x2 cm cut surface shows small whitish areas. Ovaries were all embedded.

**MICROSCOPIC DESCRIPTION**

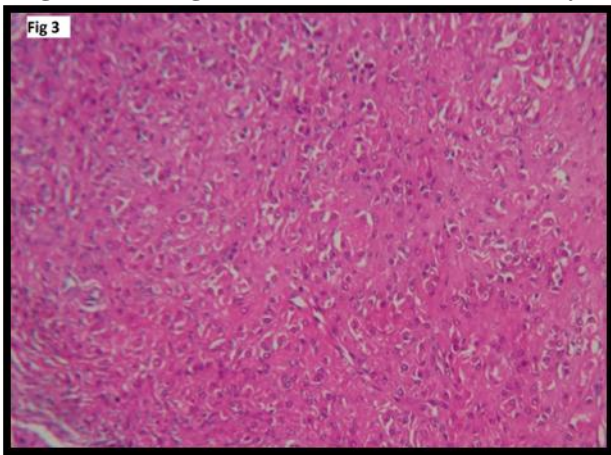
Section from the hysterectomy specimen shows an endometrial polyp composed of cystically dilated endometrial gland in a background of edematous stroma. Myometrium shows adenomyosis. Cervix shows atrophic cervicitis with nabothian cyst. Tubes show normal histology. Multiple sections of ovary shows corpora albicantes and islands of Leydig cells with abundant eosinophilic cytoplasm and dark staining nuclei surrounded by ovarian stroma. No prominent atypia or mitosis was found and Reinke's crystals were not seen. Immunohistochemistry with calretinin showed positivity for Leydig cells.



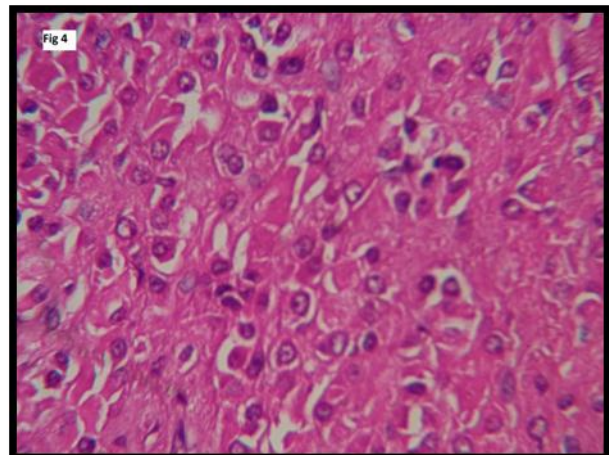
**Fig 1: 100X magnification of stroma of Left ovary.**



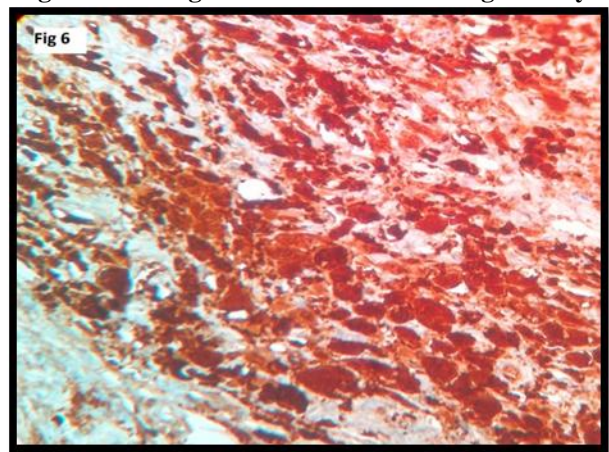
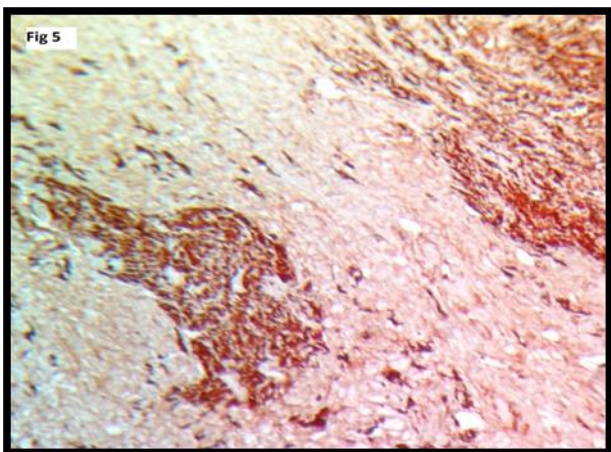
**Fig 2: 400X magnification of stroma of Left ovary.**



**Fig 3: 100X magnification of stroma of right ovary.**



**Fig 4: 400X magnification of stroma of right ovary.**



**Fig 5 & 6: Immunohistochemistry of Calretinin showing positivity.**

## DISCUSSION

Ovarian Leydig cells are morphologically similar to the Leydig cells of testes. Leydig cells are moderately sized round to polygonal cells, vesicular, central nuclei and eosinophilic, granular to finely vacuolated cytoplasm that are infrequently observed in routine sections of the ovaries. Their observation, therefore, usually indicates some degree of hyperplasia.<sup>[2]</sup>

As to our knowledge this appears to be the first report of an incidental finding of Stromal Leydig cell in the ovaries associated with adenomyosis & endometrial polyp.

Leydig cell hyperplasia is generally of a mild degree and unassociated with clinical endocrine disturbance. Although the endocrine profile is not consistent or specific for Leydig cell hyperplasia, there may be increased serum testosterone levels.

The hyperplasia of Leydig cells usually appear as clusters and nodules of typical rounded or polygonal cells with moderately sized, vesicular, central nuclei and eosinophilic, granular to finely vacuolated cytoplasm. Reinke crystalloids are sometimes found in occasional cells although they may be sparse. Their prominence does not correlate with the severity of the hyperplasia. Nuclear pleomorphism is not common, although bizarre hyperchromatic nuclei may be encountered in the hyperplastic Leydig cells of postmenopausal women. The distinction between extensive Leydig cell hyperplasia and Leydig cell tumor can be difficult, although a diameter of 1.0cm is frequently used as the minimum cut off for a tumor.<sup>[3]</sup>

Stromal Leydig cells may be seen in simple stromal hyperplasia's or stromal proliferations reactive to metastatic carcinomas or primary epithelial ovarian neoplasms.<sup>[4]</sup>

Gonadotrophin studies were not done on this patient. Steroid secretion from Leydig cells usually produces defeminization and masculinization in women. However no such features were seen in this patient and the only evidence of any hormonal activity were the development of endometrial polyp at a postmenopausal age and a focus uterine adenomyosis.

## CONCLUSION

Based on an extensive review on literature, only a few cases have reported existence of Leydig cells in the ovarian stroma. The present case shows incidental finding of Stromal Leydig cell hyperplasia in both the ovaries with uterine adenomyosis & endometrial polyp. It is a well-known fact that high production of steroid hormone especially estrogen is associated with endometrial carcinoma and some reports in the literature imply the association between Leydig cell hyperplasia of ovary and endometrial carcinoma.<sup>[5]</sup> Hence extensive microscopic study of Leydig cells in the ovarian specimens with regular follow up of the patients for developing effects related to high hormonal status can be a subject of further research.

## REFERENCES

1. Blaustein's Pathology of the Female Genital Tract.
2. Robboy's Pathology of the Female Reproductive Tract: Stanley J. Robboy MD FCAP, George L. Mutter MD, Jaime Prat MD PhD FRCPath, Rex C Bentley MD, Peter Russell MD FRCPA, Malcolm C. Anderson FRCPath FRCOG.
3. K.H. Young, P.B. Clement, R.E. Scully. The Ovary, Diagnostic Surgical Pathology 3rd Edition. Lippincott Williams & Wilkins, 1999.
4. Cyril C. Marcus. Relationship of ovarian hilus cells to benign and malignant endometrium. *Obster and gynnaec*, July 1963; 22(1): 73–81.
5. Mohammed NC, Cardenas A, Villasanta U, Toker C, Ances IG. Hilus cell tumor of the ovary and

endometrial carcinoma. *Obstet Gynecol*, 1978; 52: 486-490.