**International Journal of Clinical Science and Medical Research**

**ISSN(print): 2770-5803, ISSN(online): 2770-582X**

**Volume 02 Issue 01 January 2022**

**Page No : 05-07**

# An Incidental Finding of Transitional Cell Rest in the Ovary in a Case of Rectal Carcinoma

**Dr. Waseema Banu K[1], Dr. Shobana[2], Dr. S. Mary lilly[3]**

[1]Postgraduate in Department of pathology.

[2]Associate Professor in Department of pathology.

[3]Professor and HOD in Department of pathology.

**ABSTRACT**

Walthard cell nests can be defined as benign transitional cell clusters of epithelial cells which is found in connective tissue of fallopian tube, mesovarium, mesosalpinx and ovarian hilum. It is considered to be a precursor of Brenner tumor of ovary. Hereby, we report a rare incidental finding of Walthard cell rest in the ovary in a case of mucinous adenocarcinoma of rectum.

***Published Online: 14 January 2022**

**Keywords:**
Walthard nest, ovary, Brenner tumor, IHC.

**CASE REPORT**

A 50 yr. old female presented with complaints of bleeding per rectum for 1 yr. Perrectal examination showed a semi circumferential mass 10 cm from anal verge. Sigmoidoscopy shows growth in the upper 1/3rd with 80% lumen obstruction. MRI showed features suggestive of carcinoma mid rectum. Patient underwent the procedure of rectal segmental resection surgery along with lymph node dissection and bilateral oophorectomy and the specimen was sent for histopathological examination. We received the specimen of resected segment of rectum along with lymph nodes and bilateral ovaries in separate containers. Grossly, there was an ulceroproliferative growth measuring 4x3.5x2cms seen in upper 1/3rd of rectum. Rest of the bowel mucosa appears unremarkable. We also received bilateral ovaries, each measuring 3x2x1cm and the external surface and cut section were unremarkable. Bits were taken from the representative areas. Microscopically, a diagnosis of mucinous adenocarcinoma of rectum with Walthard cell rest in the ovaries was made. Sections from the colonic mucosa showed neoplasm arranged in complex glandular and acinar pattern. The glands are dilated with papillary infoldings and lined by atypical columnar cells with epithelial stratification, enlarged vesicular nuclei, prominent nucleoli surrounded by mucinous pool.

***Corresponding Author: Dr. Waseema Banu K**

****Cite this Article: Dr. Waseema Banu K, Dr. Shobana, Dr. S. Mary lilly (2022). An Incidental Finding of Transitional Cell Rest in the Ovary in a Case of Rectal Carcinoma, 2(1), 05-07***

The surrounding stroma shows lymphocytic infiltration with tumor seen infiltrating the muscularis propria and up to perirectal fat (mesorectum)

Sections from one side ovary showed ovarian parenchyma with nests of transitional epithelium (Walthard nests or heterotopia). Rebits from same side ovary also showed Walthard cell rest.

Sections from the other side ovary showed normal cystic follicles.

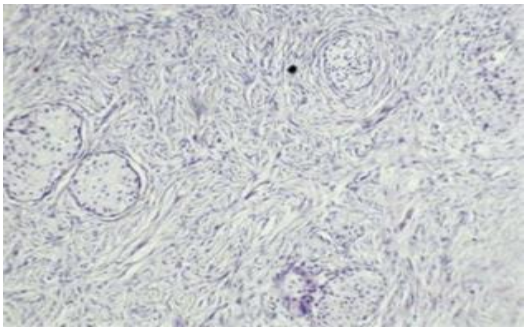

**Fig. 1.** Low power 10x, shows transitional cell rest surrounded by ovarian stroma

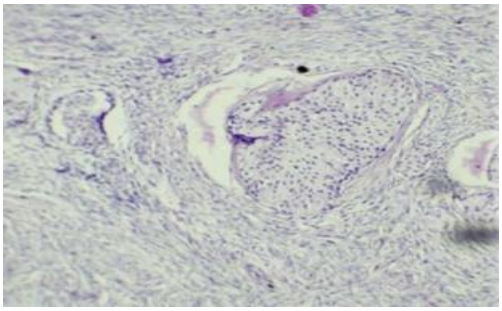

**Fig. 2.** Low power 10x, shows transitional cell rest in the ovarian

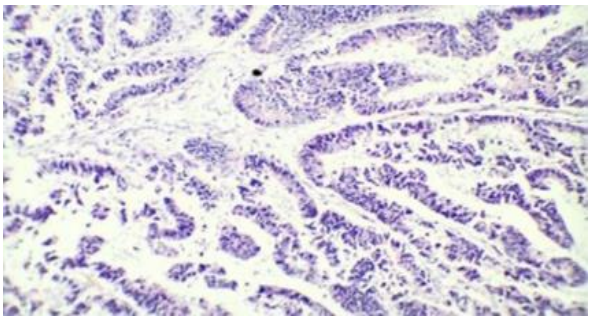

**Fig. 3.** Low power 10x,; Mucinous adenocarcinoma of return

## DISCUSSION

Epithelial nests in 80 serially ordered sectioned ovaries has been studied well in the Walthard's paper that was published in the year 1903. Walthard cell rests are the nests made of transitional epithelium which are generally on the pelvic peritoneum in females [(1)] and were commonly found over the surface of the fallopian tubes, mesosalpinx, mesoovarium and posterior aspect of broad ligament and is probably of mesothelial nature. They are not common to be seen on the ovarian surface, however, might be seen in the hilus of the ovary [(1)]. In our case this is yet another rare finding that Walthard cell rests were found in the ovarian cortex. In the same year, Meyer reported similar nests on fallopian tube, broad ligament, testis and epididymis [(2)] which implies Walthard nests are also seen in men, usually in the vicinity of the epididymis. They most likely occur via the development of reserve cells. This is supported by transitional metaplasia within mesothelial cysts within the mesosalpinx.

Danforth defined the Walthard nests were basically a smaller group of cells that could be inside the cortex or hilum of the ovary or under the tubal mucosa or inside the mesosalphinx of the fallopian tube. The solid and the cystic, are the two different types of Walthard nests. In cystic type, the central part contains the mucin or pseudomucin, colloid, or mixed material [(3)]. These nests were formed by two cells with one comprising of densely packed cells with dark- staining, spindle-shaped nuclei and then the other is a round, oval or polygonal cells containing large vesicular nuclei and surrounded by abundant cytoplasm. The cystic nests were comprised of eosinophilic granular material. The flattened epithelial cells were the lining of cysts. The walls of these nests usually are single layer to multiple layer thick.

CICs (cortical inclusion cyst) and related mullerian cysts in the para ovarian, paratubal, and hilar regions exhibit a wide range of epithelial metaplasias, including mucinous, endometrioid, and transitional (Walthard cell rests) type, corresponding to the malignant phenotypes seen in epithelial ovarian tumors. Metaplastic potential of the pelvic peritoneum showed differentiation to cells of transitional type, exemplified mostly by Walthard nests.

Sometimes, Walthard rests may be seen in association with tuboovarian adhesions.

Walthard cell rest was thought to be a source of brenner tumors or transitional cell tumors of ovary. Around forty percent of brenner tumors were associated with walthard nests and these brenner tumors admixed with walthard nests had the same morphology and immunoprofiles.

Patients with Brenner tumors when examined are sometimes found to be associated with Walthard nests significantly than those with serous, clear cell, or endometrioid tumors [(4)] and around fifty percent of the patients with Brenner tumor were found to have Walthard nests.

Walthard nests are also associated with mucinous tumors along with Brenner tumors of the ovary.

But Walthard nests seen in a case of rectal carcinoma is very rare co-incidence as in our case but the pathogenesis behind the same need extensive analytical studies.

Evidence suggested that the benign Brenner tumors could have true urothelial differentiation, while transitional cell carcinoma (unassociated with benign Brenner component) could be a variant of high-grade serous carcinoma. This same type of epithelium is characteristic of Walthard cell nest can also be found in Peritoneum [(5)] [(6)].

The same phenomenon applies to rarely encountered extraovarian Brenner tumors, most frequently in the broad ligament and uterus which is arising from the pelvic peritoneum, a derivation similar to that postulated for most ovarian Brenner tumors.

Walthard nests are positive for p63. Both Walthard nests and Brenner tumor are positive for urothelial differentiation marker GATA3[(7)][(8)] and negative for Mullerian (PAX8 and PAX2) markers. and germ cell makers (SALL4) [(7)][(9)]. However, on IHC, Walthard cell rest are positive for CK- 7 and involucrin and negative for CK 20 and uroplakin, whereas Brenner tumors are positive for uroplakin [(5)].

Nests of transitional epithelium have also been identified in the walls of several of squamous tumors of ovary, a finding suggesting an origin from Walthard nests. Other epidermoid cysts have contained teratomatous foci as well as Walthard nests; such tumors belong to the germ cell category.

Para testicular Brenner tumor which is a very rare entity probably arises from the Walthard nests of the tunica vaginalis.

Ordonezet and Mackay et al, found that only limited ultrastructural similarities between normal urothelium and Brenner tumor epithelium [(6)]. Soslow et al. [(9)] was observed that Brenner epithelium and Walthard nests are CK-20 negative. However, normal bladder epithelium is always positive. From the findings the derivation of Brenner tumor was in unclear state. Since the novel urothelial markers thrombomodulin or uroplakin, [(10)] three separate groups [(5)(11)(12).] of pathologists have noted a high degree of positivity

in Brenner tumors, which indicates true urothelial differentiation.

## CONCLUSION

Walthard cell rests are often grossly under-recognized and an incidental microscopic finding. All the facts and review of literature indicates that before making a confirmatory diagnosis of Walthard cell rest, a differential diagnosis of Brenner's tumor should always be considered and specifically if it is at the site of ovary and other location as well. Association of Walthard cell rest in ovary and mucinous adenocarcinoma of rectum is a very rare phenomenon and extensive sampling and follow up is mandatory to look for any transformation from Walthard cell rest to Brenner tumor in the ovaries in future and with this we highlight the importance of follow up in patients with Walthard cell rest in any site and further studies need to be done in the pathogenesis behind this rare association.

## REFERENCES


I. Sternberg's Diagnostic Surgical Pathology. Vol I, 6th edition P.no 3970.

II. Yesim G, Kacar SO 2003. Immunohistochemical profile of serous papillarycystadenofibroma of the fallopian tube: A clue of Paramesonephric origin. App.Immunohistochem. Mol. Morphol., 2: 153-155.

III. Kanbour AL, Burgers F, Salazar H. Intramural adenofibroma of the fallopian tube; light and electron microscopy. Cancer, 1973:31: 1433- 1439.

IV. Seidman JD, Khedmati F (2008) Exploring the histogenesis of ovarian mucinous and trasitional cell (Brenner) tumors: a study of 120 tumors. Arch Pathol Lab 132:1753-1760.

V. Riedel I, Czernobilsky B, Lifschitz-Mercer B, Roth LM, Wu XR, Sun TT, Moll R.Brenner tumors but not transitional cell carcinomas of the ovary show urothelial differentiation: immunohistochemical staining of urothelial markers, including cytokeratins and uroplakins. Virchows Arch. 2001: Feb;438(2):181-91.

VI. Ordóñez NG, Mackay B. Brenner tumor of the ovary: a comparative immunohistochemical and ultrastructural study with transitional cell carcinoma of the bladder. Ultrastruct Pathol. 2000;24:157–167.

VII. Andres A, Roma MD, Ramya P, Masand MD Ovarian Brenner tumors and Walthard nests:a histologic and immunohistochemical study. Human Pathology.2014:45, 2417- 2422.

VIII. Esheba GE,Longacre TA, Atkins KA, Higgins JP. Expression of the urothelial differentiation markers GATA3 and placental S100 (S100P) in female genital tract transitional cell proliferations.Am J surg Pathol. Mar;2009:33(3):347-53.

IX. Soslow RA, Rouse RV, Hendrickson MR, et al. Transitional cell neoplasms of the ovary and bladder: a comparative immunohistochemical analysis. Int J Gynecol Pathol. 1996;15:257–265.

X. Kaufmann O, Volmerig J, Dietel M. Uroplakin III is a highly specific and moderately sensitive immunohistochemical marker for primary and metastatic urothelial carcinomas. Am J Clin Pathol. 2000;113:683–687.

XI. Logani S, Olivia E, Amin MB, et al. Immunoprofile of ovariantumors with putative transitional cell (urothelial) differentiation using novel urothelial markers: histogenetic and diagnostic implications. Am J Surg Pathol. 2003;27(11):1434–1441.

XII. Ogawa K, Johnsson Sl, Cohen Sm. Immunihistochemical analysis of yroplakins, urothelial specific proteins in ovarian Brenner Tumors, normal tissues and benign and neoplastic lesions of female genital tract. Am J Pathol 1999;155:1047-1050.

XIII. Roma AA, Masand RP. Ovarian Brenner tumors and Walthard nests: a histologic and immunohistochemical study. Hum Pathol [internet] 2014 Dec;45(12):2417-22. [cited. Epub 2014 Aug 23].

XIV. D.M. Fletcher (4th edition) Diagnostic Histopathology of Tumors Vol I, Part 2, P.no 1048.

XV. Robert J. Kurman Lora Hedrick Ellenson Brigitte M. Ronnett (6th edition) Blaustein's Pathology of the Female Genital Tract.

XVI. Ordóñez NG, Mackay B. Brenner tumor of the ovary: a comparative immunohistochemical and ultrastructural study with transitional cell carcinoma of the bladder. Ultrastruct Pathol. 2000;24:157–167.

XVII. Andres A, Roma MD, Ramya P, Masand MD Ovarian Brenner tumours andWalthard nests:a histologic and immunohistochemical study.Human Pathology.2014:45, 2417-2422.

XVIII. De La Fuente AA . Benign mixed mullerian tumor–adenofibroma of the fallopian tube. Histopathol, 1982:6: 661-666.

XIX. D.N.Danforth Amer .J.Obst . Gyn. XIiii,984.1942.