

## Intraoperative Scrape Cytology: A Case of Ovarian Fibrothecoma

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**Abstract:** Fibrothecomas are sex-cord stromal tumors that have histologic appearances intermediate between fibromas and thecomas. The exact incidence of fibrothecoma is unknown, although they have been described as rare ovarian neoplasms. A 69 year old post menopausal female was presented with a huge left ovarian mass (17x15x8 cm). Intraoperative scrape smears were prepared from the ovarian mass. Smears showed mostly oval to spindle cells with scanty cytoplasm, finely granular chromatin and inconspicuous nucleoli alongwith few cells with plumper nuclei. A provisional diagnosis of fibrothecoma was proposed depending on the cytomorphological features. After surgical excision histopathological examination was performed that confirmed the diagnosis. We concluded that intra-operative scrape cytology can be a useful procedure for the diagnosis of ovarian neoplasms.

**Keywords:** Fibrothecoma, Ovarian neoplasm, Scrape cytology

### INTRODUCTION

Fibrothecomas are sex-cord stromal tumors that have histologic appearances intermediate between fibromas and thecomas [1]. In the recent World Health Organization classification, they are under a class of tumors called the “thecoma-fibroma group” [2]. The exact incidence of fibrothecoma is unknown, although they have been described as rare ovarian neoplasms [3]. Till today, gynaecologists all over the world are hesitant to accept the role of fine needle aspiration cytology (FNAC) on pelvic masses because of the controversial opinion about the potential risk of intraperitoneal tumor implantation, particularly of ovarian tumors, [4]although the risk of carcinoma (CA) cell seeding within the abdominal cavity due to contamination by needles is overestimated [5] and has not been clinically or pathologically documented [6]. Hence intraoperative imprint cytology or scrape cytology can be a good alternative of FNAC for the diagnosis of ovarian neoplasms.

Here we have presented a rare case of fibrothecoma in a post-menopausal woman. This case was diagnosed by intraoperative scrape cytology and after the surgery, histopathological confirmation was established.

### CASE REPORT

A 69 year old postmenopausal female was presented with the history of post menopausal bleeding and pain abdomen. She had no feature of masculinisation. Abdominal ultrasonography revealed a large, solid mass in left ovary. The contralateral ovary was normal. No lymph node enlargement was detected. Other abdominal viscera were unremarkable. Significant ascitis was present. Ascitic fluid was negative for malignant cells.

This patient underwent total abdominal hysterectomy and bilateral oophorectomy. Intraoperative scrape smears were prepared from the large left ovarian mass and then the whole specimen was sent to our department of Pathology. Grossly, the left ovarian mass measured 17x15x8 cm with smooth surface. There was no evidence of capsular breach. Sectioning revealed a solid, firm, grayish mass with areas of hemorrhage (Fig. 1). The other sided ovary measured 1x1x1 cm. Uterus, cervix and the right ovary were unremarkable on cut section. Intraoperative scrape smears were stained by Leishman-Giemsa and papanicolaou (Pap) stain. Smears showed high cellularity, mostly composed of oval to spindle cells with scanty cytoplasm, finely granular chromatin and inconspicuous nucleoli. After thorough examination of the smears few cells were found having plumper nuclei with fragile cytoplasm (Fig. 2a& 2b). No evidence of irregular branching or papillary configuration was seen.

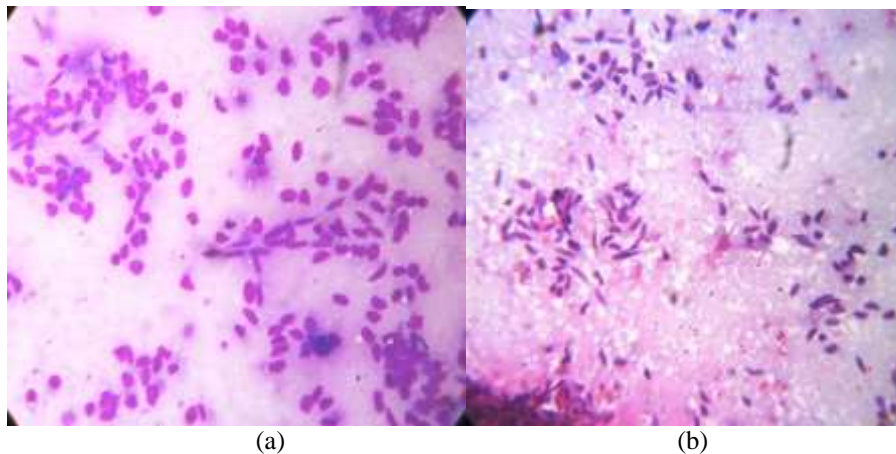
No evidence of acinar pattern or mitosis was noted. Coffee bean shaped nuclei or nuclear groove or call exner body were also absent in the smears. A cytomorphological diagnosis of fibrothecoma was proposed and histopathological confirmation was suggested.

Subsequent formalin fixed and paraffin embedded (FFPE) sections were stained by Hematoxylin and Eosin (H&E) stain(Fig. 3). Sections from the left ovarian mass showed histology of a tumour composed of fascicles of spindle shaped

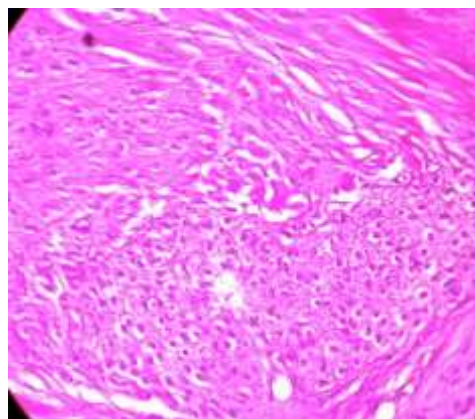
cells(Fig.4a) admixed with plump looking cells (theca cells) (Fig. 4b). No nuclear atypia was noted. Mitotic figures were sparse (0-1/ 20HPF). Many thin walled vascular spaces were also noted and at places showed hemangiopericytomatous pattern. Areas of collagen deposition were also seen. Ovarian capsule was intact. Considering the overall features of the tumour mass histopathological diagnosis of fibrothecoma was established. Sections from the endomyometrium showed features of simple cystic hyperplasia without atypia (Fig.5) and sections from the right tube and ovary showed unremarkable histology.



**Fig.1: Gross: Left ovarian mass measuring 17x15x8 cm and cut section shows solid grayish mass**



**Fig.2: Oval to spindle shaped cells with scanty cytoplasm and inconspicuous nucleoli [(a)Leishman-Giemsa stain, x40, (b) Papanicolaou stain, x400]**



**Fig. 3: Showing both fibromatous and thecomatous component [H & Estain x400]**

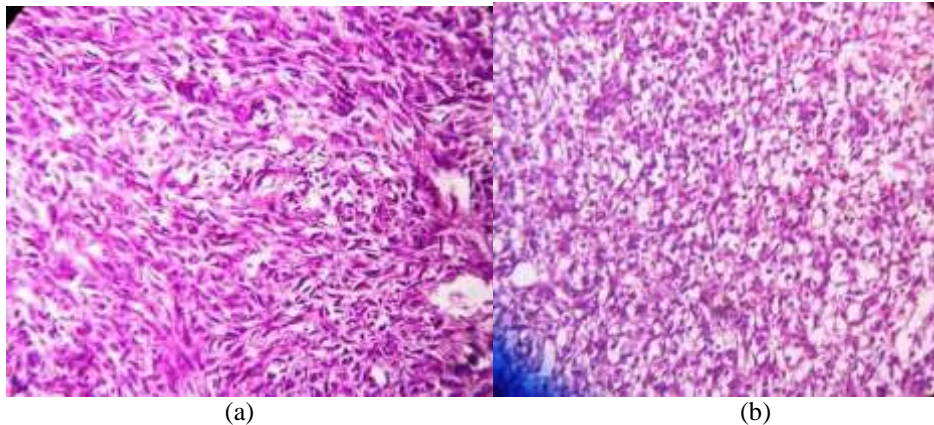


Fig. 4: (a) Showing fascicles of spindle cells with sparse mitotic figures; (b) Showing polygonal cells with a moderate to abundant amount of clear cytoplasm (the comatous component) [H & Estain x400]

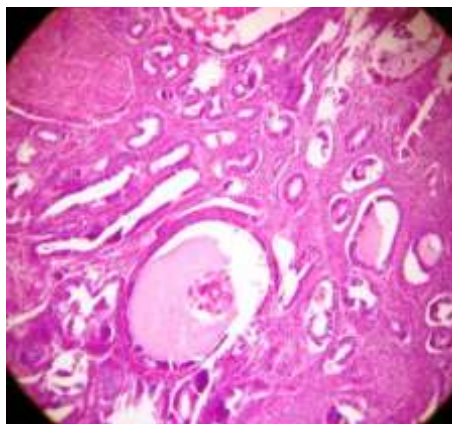


Fig. 5: Endometrium showing features of simple cystic hyperplasia without atypia [H & Estain x400]

## DISCUSSION

Dudgeon and Patrick were the first to describe the use of imprint smears of tissues in rapid microscopic diagnosis of tumors [7]. Following this, several studies done in the past have discussed the use of imprint and touch preparations especially as a tool for intraoperative diagnosis [8-10]. Scrape cytology is a modification of imprint cytology and its diagnostic accuracy is better than imprint cytology [9]. Scraping of the cut surface prior to smearing facilitates the harvesting of cells. Hence, scrape cytology could be preferred over touch preparations/imprint cytology as the former technique would yield much more material than the latter [7]. Few studies have demonstrated that in experienced hands the diagnostic efficacy of intraoperative cytology are comparable to that of frozen sections with 92% diagnostic accuracy in characterizing cytological pattern and morphology of ovarian tumors [11,12].

Here we have presented a case of ovarian fibrothecoma in a 69 year old post menopausal female. Intraoperative scrape smears showed high cellularity, mostly composed of oval to spindle cells with scanty cytoplasm, finely granular chromatin and inconspicuous nucleoli. After thorough examination of the smears few cells were found having plumper nuclei with fragile cytoplasm resembling theca cells. Considering the age

and radiological findings of the patient a provisional diagnosis of fibrothecoma was proposed. Our cytological findings were similar to the findings of Yang *et al.* for the diagnosis of fibrothecoma [13].

Subsequent formalin fixed and paraffin embedded (FFPE) sections showed histology of a tumour composed of fascicles of spindle shaped cells admixed with plump looking cells (theca cells). No nuclear atypia was noted. Mitotic figures were sparse (0-1/20HPF). Many thin walled vascular spaces were also noted and at places showed hemangiopericytomatous pattern. Areas of collagen deposition were also seen. Ovarian capsule was intact. Considering the overall features of the tumour mass histopathological diagnosis of fibrothecoma was established.

Thus the histopathological confirmation of the cytological diagnosis was established.

## CONCLUSION

To conclude, scrape cytology is a simple, quick, accurate, inexpensive adjunctive cytodiagnostic technique and its routine utilization in ovarian lesions could aid in expanding the knowledge of cytology of ovarian neoplasms. Ability of the scrape cytology smears to render immediate diagnosis highlights its role

and potential usage in intra-operative consultation in institutions unequipped with frozen section facility.

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