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An agglomeration of rare female genital tract tumours: An experience from a tertiary care centre

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Abstract
Introduction: The proportion of malignancy from genital tract origin in females ranges from 22.4% to 55.8% in India; which poses a major health problem, and has been rising in the recent years.
Aim: Is to study the histopathological and immunohistochemistry features of rare tumors of female genital tract.
Materials and Methods: A retrospective analysis of rare female genital tract tumors was conducted at Sri Manakula Vinayagar medical college and hospital, Pondicherry, for a period of5 years (July 2019 to July 2023).
Results: A total of 636 cases with gynaecological complaints were studied, out of which 50 cases of rare female genital tract tumours including both benign and malignant were identified. The anatomic distributions these tumors include vulva (4%), vagina (2%), cervix (12%), endometrium (8%), myometrium (12%), fallopian tubes (8%), ovary (46%), broad ligament (6%) and periurethral (2%).
Conclusion: Rare FGT tumors can mimic common malignancies clinically and radiologically and can be diagnostically challenging. Hence histopathological diagnosis has to be considered as a gold standard and has to be confirmed by immunohistochemistry for relevant cases.

Keywords: Tertiary care centre, agglomeration, female genital, tract tumours, immunohistochemistry

Introduction
Female genital tract (FGT) is the site of large number of tumours of considerable diversity, some very common and some extremely uncommon [1]. Female genital tract is most common site for tumours in females with the uterine corpus being the second most common site for malignancy of the female genital system. The commonest type of female genital tract malignant tumours according to anatomic distribution is cervical, ovarian and endometrial followed by vagina, vulva and fallopian tubes [2-4]. Rare FGT tumours in our case study were anatomically located in ovaries followed by myometrium and cervix with equal preponderance. Ovarian germ cell tumours are the rare tumours comprising for about 1-2% of ovarian malignancies while sex-cord-stromal tumours (SCST) comprise of 5-10% [5]. Uncommon histological types in uterine corpus collectively include endometrium and myometrium lesions like Papillary serous carcinoma and clear cell carcinoma. Sarcoma of uterus are 3-8% which are relatively rare [3, 6]. We also encountered certain common tumours at uncommon or unusual sites of FGT, such as leiomyomas of cervix. Cervical leiomyomas are rare and are estimated to be approximately 0.6% of the total uterine leiomyomas [7].
Here is a table of rare female genital tract tumours encountered based on their anatomical locations:

Material and Methods
A retrospective study was conducted over a period of 5 years from July 2019 to July 2023 in the department of pathology at Sri Manakula Vinayagar Medical College and Hospital, Puducherry.

Inclusion criteria: All the surgically excised hysterectomy specimens of any age group in which tumour which includes both benign and malignant was reported, out of which exceptionally rare female genital tract tumours are included in the present study.

Site	Diagnosis	Incidence
Vulva	Deep angiomyxoma	< 1%
	Eccrine poroma of vulva	0.005%
Vagina	Aggressive angiomyxoma	< 1%
Cervix	Cavernous hemangiomatous polyp	< 50 cases
	Lymphoepithelial type of squamous cell carcinoma	< 1%
	Cervical leiomyoma	< 3%
	Cervical lymphoma	< 0.1%
Endometrium	Endometrial stromal sarcoma	0.2%
	Mixed carcinoma (endometrioid and serous)	< 10% of endometrial carcinoma
Myometrium	Lipoleiomyoma	< 1%
	Atypical polypoidal adenomyoma	< 1%
	Leiomyosarcoma (epithelioid variant)	1-2%
	Smooth muscle tumour of uncertain malignant potential	Rare
	Cellular leiomyoma with osseous metaplasia	Very rare
Fallopian tube	Serous tubal intraepithelial carcinoma	< 1%
	Synchronus tumour (endometrioid carcinoma of endometrium and fallopian tubes)	Rare
	Sclerosing stromal tumour	2-6% of all sclerosing tumours
Ovary	Granulosa cell tumour sertoli cell tumour	1% < 0.5%
	Mature solid teratoma with gliomatosis peritonei	100 cases, 1%
	Fibroma, fibrothecoma (4)	4%
	Dysgerminoma (3)	1%
	Benign serous cystadenoma with adjacent brenner tumour	1/3rd of 5%

Exclusion criteria: Hysterectomy specimens of Non neoplastic conditions and biopsy specimens were excluded.

Results

A total of 636 cases were included in the present study. Out of which we identified 36 rare benign cases, 13 cases were found to malignant tumours and 1 case was found to be in indeterminant category of rare tumours. The age of the patient ranged from 20-72 years. While most rare tumours involved ovary, followed by cervix and myometrium with equal preponderance of 6 cases in each anatomical sites, also the least affected with rare tumours was periurethral and vagina respectively in our study.

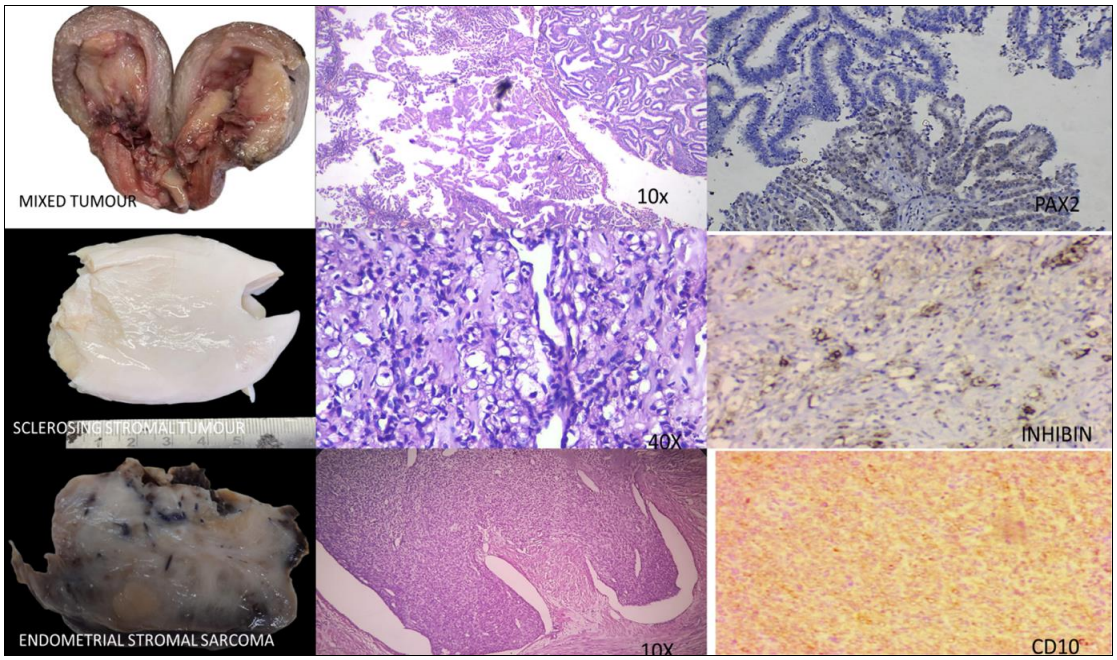

Fig 1: A) Mixed endometrioid and serous carcinoma with Partial and complete loss of PAX2 B) Sclerosing stromal tumour with moderate cytoplasmic positivity of inhibin C) Endometrial stromal sarcoma with CD10 moderate cytoplasmic positivity.

Discussion

The reproductive health issue is now a global social agenda for upcoming years [8]. Maternal morbidity is currently the only indicator to assess women's health. Regular screening, self-examination, and lifestyle modifications are necessary in case of such malignancy of FGT, which are considered to be the "Silent killers". Though USG, fnac and histopathology, along with clinical history, aid in diagnosing these lesions, further IHC may be required in cases of dilemma and categorization of rare but also in a few common malignancies with overlapping features.

In our study, we emphasized the findings of certain rare FGT tumours we encountered during the survey of five-year retrospective cases, which have yet to be done. Out of 636 cases, we picked up fifty rare FGT tumours, the least encountered in our daily practice. The differential diagnosis of such rare tumours has to be kept in mind while interpreting and giving the confirmatory diagnosis with the aid of IHC.

In comparison to a study done in the northern state of India for common FGT tumours, our study had rare tumours encountered in the ovary when compared to cervical carcinomas in overall

common malignancy of FGT, followed by cervix and myometrium with an equal proportion of cases and most minor were found to be confined to vulva and periurethral region. Our study had a case of vulval angiomyxoma, which has been reported in only <250 cases so far in the literature to date [9]. The patient, a 48 year old female, complained of a mass in the vulval region, which was clinically thought to be a lipoma of the vulval region and had to be distinguished by HPE for its higher chance of recurrence, for which it had been named Aggressive and also encountered a case of eccrine poroma of vulva which has characteristic to progress to its malignant counterpart, which is extremely rare and has so far been reported in only 2% of all benign vulvar adnexal tumours cases [10].

Uterine corpus carcinoma is comprised majorly of endometrioid carcinoma and very infrequently as Mixed carcinoma, comprising only <10% of all endometrial carcinoma. We had a case of mixed carcinoma (endometrioid and serous), which was confirmed by partial loss of PAX-2. Endometrial stromal carcinomas constitute only about 0.2% of all sarcomas of the uterus, wherein a possibility of leiomyosarcomas was also considered due to its mimick in HPE and was confirmed by IHC by CD10. Delay in diagnosing and rendering a treatment may prove fatal as both are considered to be aggressive, but the survival rate for ESS is less when compared to LMS. The treatment modality differs for both, and an accurate diagnosis is imperative [11].

Endometrial carcinomas that occur in premenopausal or perimenopausal women are associated with excess estrogen in contrast to non-endometrioid carcinomas that are unrelated to estrogenic stimulation and tend to arise from atrophic endometrium. The relationship between these tumours was molecularly different and perceived to be consistent with the division of endometrial carcinoma into two types, and a dualistic model of endometrial carcinogenesis was proposed [12].

In certain studies, the ovary was the second leading site of FGT malignancy. In contrast, in our research, the ovary was the leading site among rare FGT tumours with the mean age group of 45 years, similar to a study done by YOELE *et al*. that ranged from 45 to 55 [13]. Though the mean age was identical, the age group in our study ranged from as low as 26 to as high as 74 years and presented with complaints of abdominal pain in contrast to a study done by Syed Fiza *et al*. in a tertiary care centre [14]. The rarest of rare ovary tumours was the Sertoli cell tumours, which was < 0.5% of cases.

In the fallopian tube, STIC (Serous tubal intraepithelial neoplasia) was the commonest of all rare FGT tumours. It has an overall prevalence of 3.5-5.6% in patients with BRCA but can also develop in patients without genetic mutation and requires only an average of 43-75 months to develop into High-grade serous carcinoma [15]. The least common and rarest tumours of the fallopian tube was the synchronous tumours (Endometrial carcinoma of the endometrium and fallopian tube).

Other cases also included cervix-Cavernous hemangioma and lymphoepithelial type of squamous cell carcinoma; in contrast to the squamous cell carcinoma of the cervix, the lymphoepithelial type has an incidence of < 1%. Cervical lymphoma, which the IHC further confirmed, had only < 0.1% incidence. Specific myometrial lesions such as Lipoleiomyomas are histologically confusing in smaller biopsies, which may have fragments of adipose tissue and may be misdiagnosed as perforation during the procedure. Lipoleiomyomas have an incidence of 0.03-2.1% of all leiomyomas [16]. Furthermore, relatively rare tumours of myometrium included Atypical polypoidal adenomyoma, leiomyosarcoma, STUMP (Spindle cell tumours of uncertain malignant potential), Cellular leiomyoma with osseous metaplasia, which is extremely rare and literature points to development of metaplastic process due to chronic inflammation and the age at the development of osseous metaplasia correlated with previous case studies as to be in perimenopausal women [17]. In conclusion, rare female genital tract tumours encompass a diverse array of histological subtypes, each with unique morphological features and diagnostic challenges. A thorough understanding of the histopathology of these tumours is essential along with an appropriate IHC requirement for early accurate diagnosis to render an appropriate management. Further research into the molecular characteristics of rare genital tract tumours may provide valuable insights into their pathogenesis and potential therapeutic targets.

Conflict of Interest
Not available

Financial Support
Not available

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