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HISTOPATHOLOGICAL SPECTRUM OF NON NEOPLASTIC AND NEOPLASTIC LESIONS OF OVARY- A 7 YEARS RETROSPECTIVE STUDY

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Abstract

Aim and objectives: This study aimed to find out the common causes of histopathological spectrum of non-neoplastic and neoplastic lesions of ovary in our institute.

Methodology: 7 years retrospective cross-sectional study included all ovaries received separately or with hysterectomy specimen in histopathology section of pathology department of GMERS Medical College & General Hospital, Junagadh for 7 years duration from December 2017 to November 2023. Slides were observed, findings were recorded and data analyzed.

Result: A total 200 cases were studied, among which most cases were from 31-50 years of age group. 62% (124 cases) were from left, 3.5% (7 cases) were from bilateral and 34.5% (69 cases) were from right. 140 (70%) cases were non-neoplastic lesions and 60 (30%) cases were neoplastic lesions. Among non-neoplastic, most cases were of hemorrhagic corpus luteal cyst (27.1%), follicular cyst (24.3%), and corpus luteal cyst (20.7%). Among neoplastic cases, maximum cases were from surface epithelial tumours (65%). Surface epithelial tumours had 19 cases (31.7%), 18 cases (30%), 1 case (1.7), and 1 case (1.7%) of serous cystadenoma, mucinous cystadenoma, serous papillary cystadenocarcinoma, and Brenner tumour respectively. 19 cases (31.7%) were of dermoid cyst. 1 case (1.7%) of fibroma and fibrothecoma.

Conclusion:

In the present study, non-neoplastic lesions were more common than neoplastic lesions. Among neoplastic lesions, maximum cases were from surface epithelial tumours, followed by germ cell tumours followed by sex cord-stromal tumours. Most common age group involved in neoplastic and non-neoplastic ovarian lesions were from 31-50 years age group.

Keywords: Non neoplastic lesion, neoplastic lesions, ovary, ovarian tumors

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Introduction:

The ovary is important reproductive organ and has multipotent and totipotent cells, so it produces any neoplasm.[1] Non neoplastic and neoplastic lesions of ovary have a wide spectrum arising from epithelial tissues, hormone-secreting germ cells, embryonal cells, and connective tissue.[2] Surface epithelial tumours are most commonly occurring neoplastic lesions of ovary, malignant surface epithelial tumours account for almost 90% of all ovarian malignancy.[3] while tumours arising from germ cells and sex cord-stromal cells have frequency of 20-30%, accounting for almost <10% among all ovarian malignancies.[4] According to National Cancer Registry Programme (NCRP) of India, the Gold standard investigation for ovarian malignancy is histopathological examination.[5] The WHO classification of ovarian malignancy based on histomorphological features of tumour cells. Recent molecular studies are supportive investigations for histomorphology-based classification that reflects the underlying molecular pathology of various ovarian malignancy subtypes.[6]

Aim and objectives: This study aimed to find out the common causes of histopathological spectrum of non-neoplastic and neoplastic lesions of ovary in GMERS Medical College & General Hospital, Junagadh.

Methodology:

- Study design: Retrospective cross-sectional study
- Sample Size: Number of ovarian specimens studied during 7 years.
- Inclusion criteria: All ovarian specimens received separately or with hysterectomy specimens in the histopathology section of the pathology department of GMERS Medical College & General Hospital, Junagadh for 7 years from December 2017 to November 2023.
- Exclusion criteria:
    - Ovaries received with hysterectomy specimens having no remarkable pathology.
    - Autolysed specimens
- Sampling Method: Received gross specimens were fixed in 10% buffered formalin for 24 hours. After that grossing was done sections were given from representative area, tissue were processed, and cut, and slides were stained by Hematoxylin & Eosin stain.
- Slides were observed and findings were recorded. Then data will be classified according to diagnosis and tabulated in excel sheet.

Result:

Table 1: Age-wise distribution of ovarian lesions

	10-20	21-30	31-40	41-50	51-60	>60	Total	%
Follicular cyst		1	9	23		1	34	17.0
Corpus luteal cyst			17	11	1		29	14.5
Haemorrhagic corpus luteal cyst	3	6	19	10			38	19.0
Simple serous cyst	1	1	3	12			17	8.5
Chocolate cyst			1	1			2	1.0
Endometriosis			4	3			7	3.5

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Ovarian torsion	7	5					12	6.0
Oophoritis			1				1	0.5
Serous cystadenoma		9	5	3	1	1	19	9.5
Serous papillary cystadenocarcinoma				1			1	0.5
Mucinous cystadenoma	2	8	2	2	3	1	18	9.0
Dermoid cyst	1	10	3	5			19	9.5
Brenner tumour			1				1	0.5
Fibroma				1			1	0.5
Fibrothecoma						1	1	0.5
Total	14	40	65	72	5	4	200	100

Total 200 cases were studied, among which most cases were from 41-50 and 31-40 years of age groups. Most cases of serous cystadenoma, mucinous cystadenoma, and dermoid cyst were from 21-30 years of age group. All cases of ovarian torsion were between 10-30 years of age group.

Out of 200 cases, 62% (124 cases) were from left, 3.5% (7 cases) were from bilateral and 34.5% (69 cases) were from right.

Out of Total 200 cases, 140 (70%) cases were non neoplastic lesions and 60 (30%) cases were of neoplastic lesions.

Table 2: Number and percentage of cases of non neoplastic lesions of ovary

Non neoplastic lesions	**Total**	**%**
Follicular cyst	34	24.3
Corpus luteal cyst	29	20.7
Haemorrhagic corpus luteal cyst	38	27.1
Simple serous cyst	17	12.1
Chocolate cyst	2	1.4
Endometriosis	7	5.0
Ovarian torsion	12	8.5
Oophoritis	1	0.7
Total	140	100

Among total 140 non neoplastic cases, most cases were of haemorrhagic corpus luteal cyst (27.1%), follicular cyst (24.3%), and corpus luteal cyst (20.7%).

Table 3: Number and percentage of cases of neoplastic lesions of ovary

	Neoplastic Lesions	**Total**	**%**
Surface Epithelial Tumour (39 cases & 65%)	Serous cystadenoma	19	31.7
	Serous papillary cystadenocarcinoma	1	1.7
	Mucinous cystadenoma	18	30
	Brenner tumour	1	1.7
Germ Cell Tumour	Dermoid cyst	19	31.6
Sex-Cord Stromal Tumour	Fibroma	1	1.7
	Fibrothecoma	1	1.7
Total		60	100

Among total 60 neoplastic cases, maximum cases were from surface epithelial tumours (65%). Surface epithelial tumours had 19 cases (31.7%), 18 cases (30%), 1 case (1.7), and 1 case (1.7%)

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of serous cystadenoma, mucinous cystadenoma, serous papillary cystadenocarcinoma, and Brenner tumour respectively.

19 cases (31.7%) of dermoid cyst. 1 case (1.7%) of fibroma and fibrothecoma.

Discussion:

Present study showed 140 (70%) cases were non neoplastic lesions and 60 (30%) cases were of neoplastic lesions. While Dr. Ashok Panchonia et al.[7] found 63% cases of non neoplastic lesions and 37% of neoplastic lesions. Vidhi et al.[8] found 66 % cases of benign and 34% cases of malignant lesions. Pilli et al.[9] found that 75.2% cases of were benign.

Table 4: Comparison of non neoplastic lesions of the ovary between various studies

Nonneoplastic lesions	**Parmar et al.[2]**	**Dr. Atul K Pandey et al.[10]**	**Dr. Ashok Panchonia et al.[7]**	**Present study**
Follicular cyst	21%	41%	10.5%	24.3%
Corpus luteal cyst	9%	24%	25.0%	20.7%
Haemorrhagic corpus luteal cyst	11%	14%	13.5%	27.1%
Simple serous cyst	3%		36.0%	12.1%
Chocolate cyst				1.4%
Endometriosis	16%	5%	6.0%	5.0%
Ovarian torsion	5%	6%		8.5%
Oophoritis	3%		7.5%	0.7%

In the present study, among all non neoplastic lesions hemorrhagic corpus luteal cyst (27.1%), follicular cyst (24.3%), and corpus luteal cyst (20.7%) were the most common lesions. Which were correlated with the findings of Dr.Atul K Pandey et al.[10] and Parmar et al.[2]

Table 5: Comparison of distributions of neoplastic lesions of the ovary between various studies

	Gupta et al.[11]	**Pilli et al.[9]**	**Parmar et al.[2]**	**Kanthikar et al.[12]**	**Makwana et al.[13]**	**Present study**
Surface Epithelial Tumour	65.6%	70.9%	69%	67.14%	65.71%	65%
Germ Cell Tumour	23.9%	21.2%	21%	22.85%	22.86%	31.6%
Sex-Cord Stromal Tumour	8.3%	6.7%	7%	5.71%	9.29%	3.4%

In the present study, the most common cause of neoplastic lesions were surface epithelial tumours (65%) followed by germ cell tumours (31.6%) and sex cord-stromal tumours (3.4%). These findings are correlated with Gupta et al.[11], Pilli et al.[9], Parmar et al.[2], Kanthikar et al.[12], and Makwana et al.[13] which showed maximum cases were from surface epithelial tumours.

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Table 6: Comparison of neoplastic lesions of ovary between various studies

Neoplastic Lesions	Dr. Ashok Panchonia et al.[7]	Vidhi et al.[8]	Parmar et al.[2]	Kanthikae et al.[12]	Jha et al.[14]	Present study
Serous cystadenoma	38.3%	42.5%	36%	40%	27.33%	31.7%
Serous papillary cystadenocarcinoma			6.5%	8.57%	7.45%	1.7%
Mucinous cystadenoma	27.6%	31.42%	16.5%	11.5%	13.04%	30%
Brenner tumour			1.5%			1.7%
Dermoid cyst	29.8%	22.14%	19%	18.57%	40.37%	31.6%
Fibroma			3%	4.28%	0.62%	1.7%
Fibrothecoma						1.7%

The most common benign tumours were serous cystadenoma (31.7%) and dermoid cyst (31.6%) followed by mucinous cystadenoma (30%). Dr. Ashok Panchonia et al.[7] found most common benign tumour was serous cystadenoma (38.3%) followed by mature teratoma (29.8%) and mucinous cystadenoma (27.6%), which is almost similar to the present study. Vidhi et al.[8] also found most common benign tumour were serous cystadenoma (42.5%) followed by mucinous cystadenoma (31.42%) and mature teratoma (22.14%). Parmar et al.[2] showed 1.5% cases of Brenner tumours which is similar to the present study (1.7%).

Conclusion:

A wide spectrum of non neoplastic and neoplastic lesions frequently occur in the ovary because of its complex structure. In the present study, non neoplastic lesions were more common than neoplastic lesions. Among neoplastic lesions, maximum cases were from surface epithelial tumours, followed by germ cell tumours followed by sex cord-stromal tumours. Most common age groups involved in neoplastic and non neoplastic ovarian lesions were from 41-50 and 31-40 years of age group.

Study suggest that, though non neoplastic lesions are more common than neoplastic lesions in ovary careful histopathological examination is necessary to rule out borderline and malignant neoplasm of ovary, which are frequently occur in ovary and cause mortality in females. Histopathological examination is the gold standard among radiological examination, clinical evaluation, and laboratory investigations for classification, further management, and prognosis of ovarian lesions.

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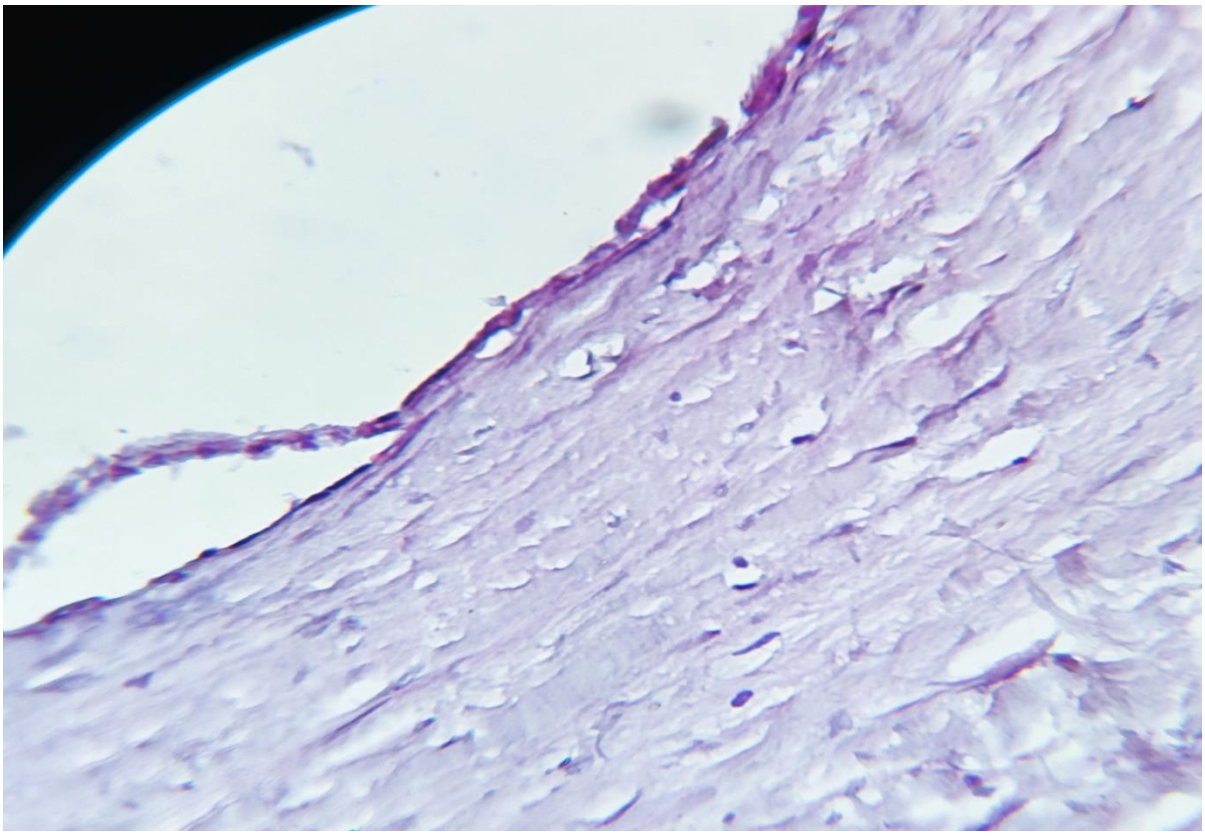

Figure 1: histopathology of Serous Cystadenoma of Ovary

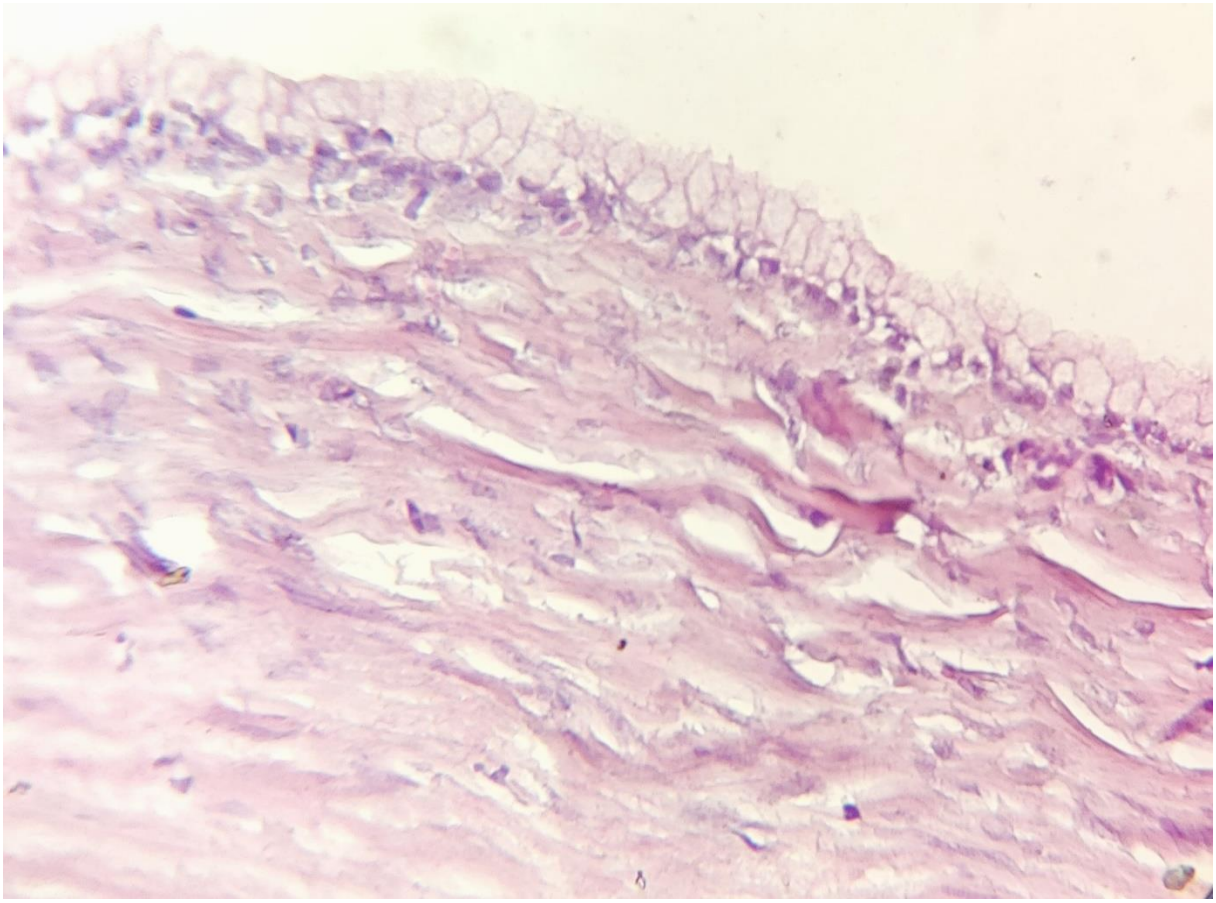

Figure 2: histopathology of Mucinous Cystadenoma of Ovary

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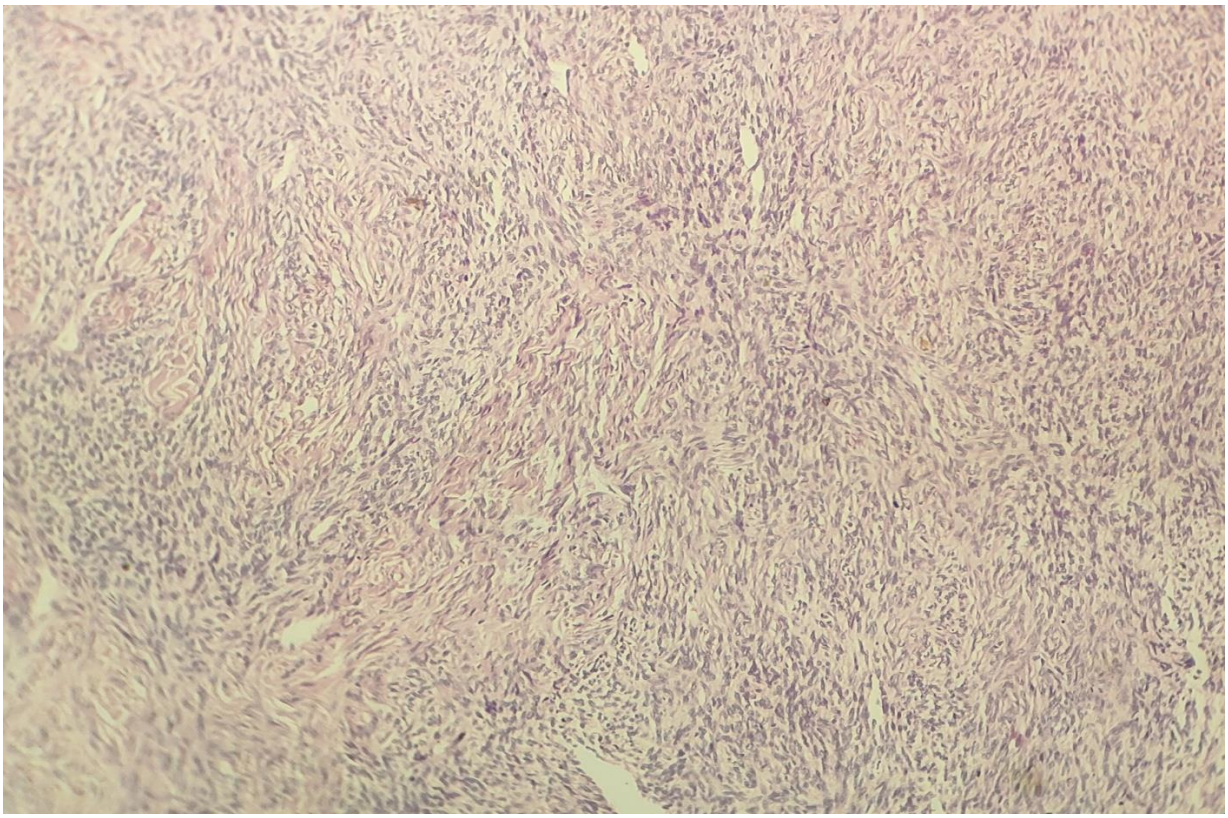

Figure 3: histopathology of Fibroma of Ovary

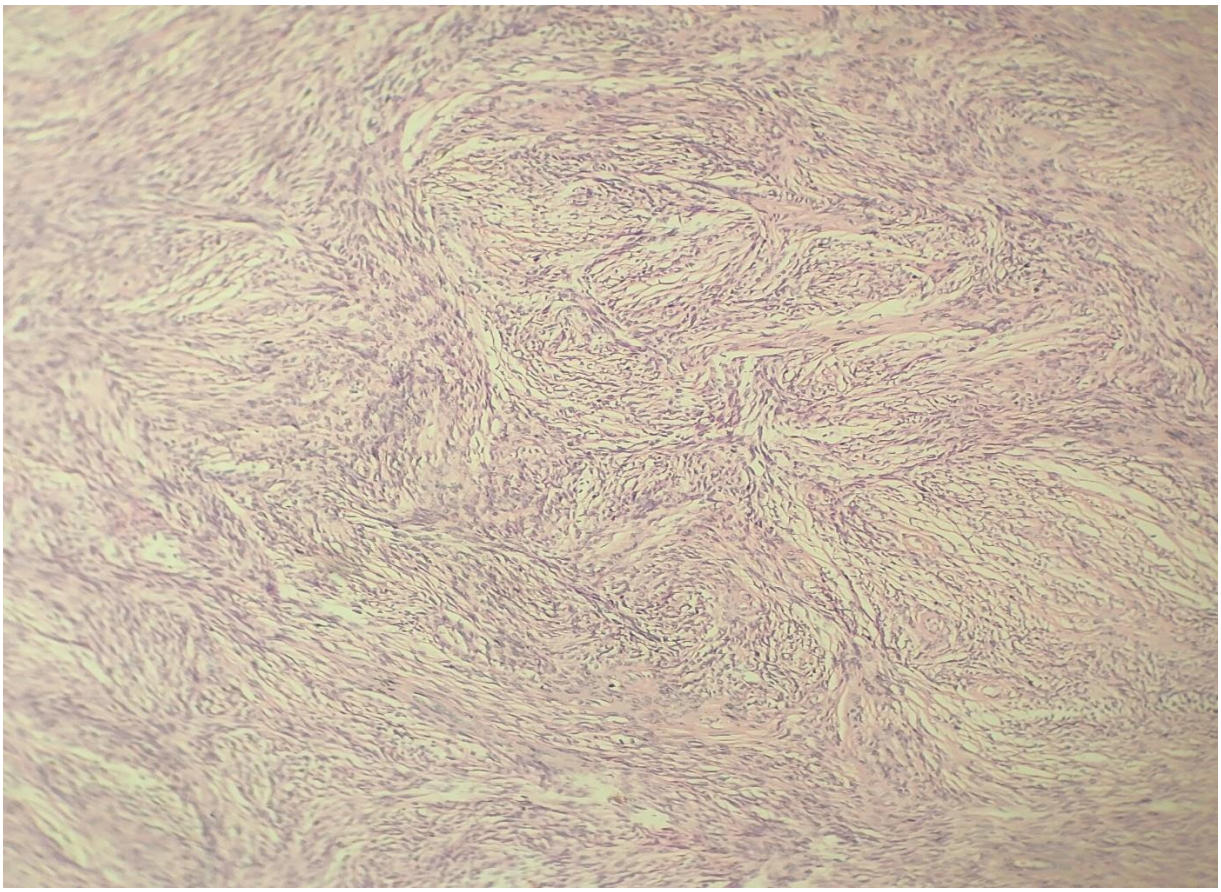

Figure 4: histopathology of Fibrothecoma of Ovary

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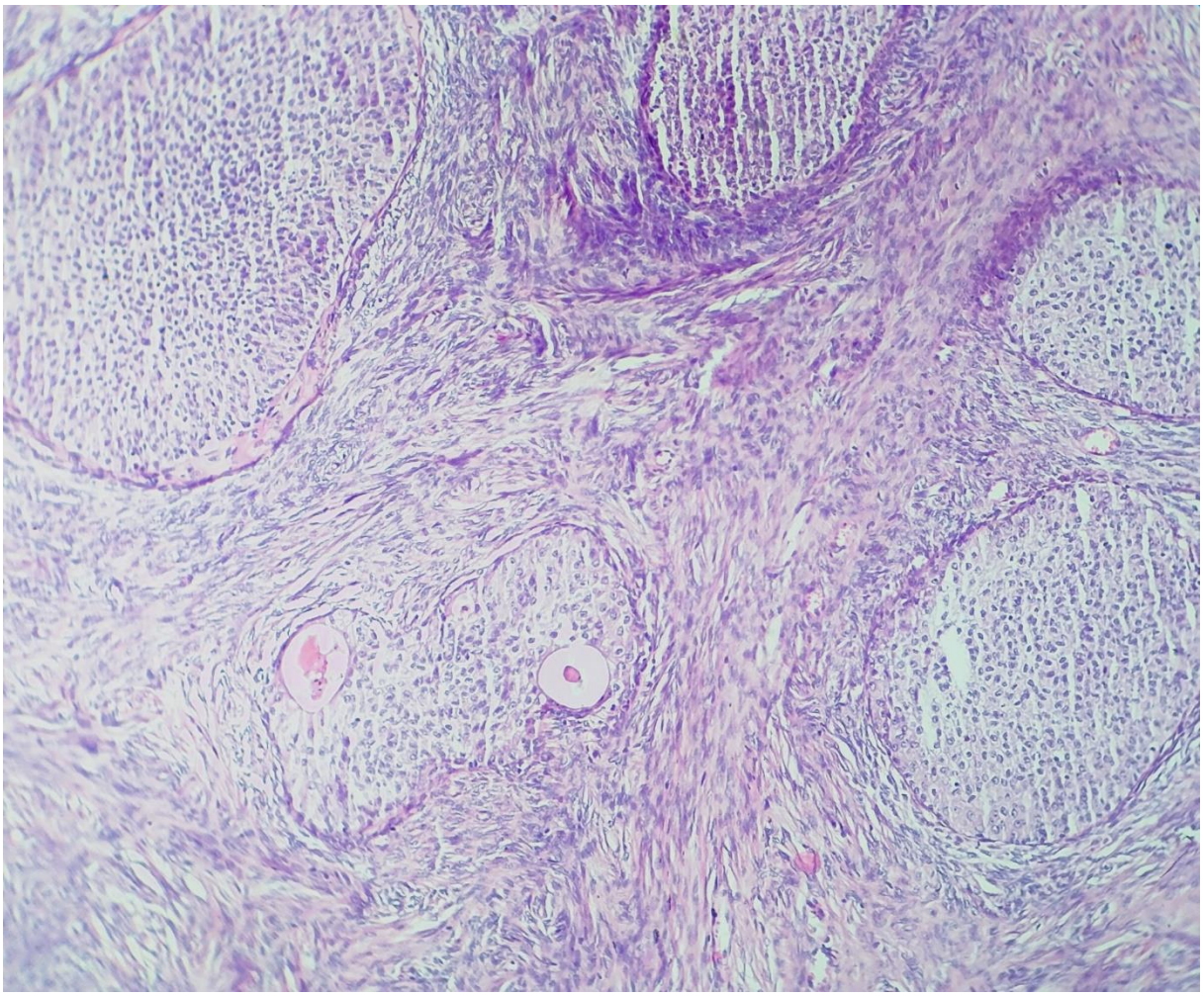

Figure 5: histopathology of Brenner Tumor of Ovary