

Radiological Evaluation of Ovarian Cystic LesionsRuchit Shah¹, Dhaval Modi²¹Assistant Professor, Department of Radiodiagnosis, ACPM Medical College, Sakri, Dhule, Maharashtra 424002.²Assistant Professor, Department of Radiodiagnosis, ACPM Medical College, Sakri, Dhule, Maharashtra 424002.

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Corresponding author: Dr. Ruchit Shah

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Abstract

Ovarian cystic lesions are among the most frequently encountered findings in gynecological imaging and encompass a broad spectrum ranging from benign functional cysts to malignant neoplasms. Accurate radiological evaluation plays a pivotal role in diagnosis, risk stratification, and management planning. Imaging modalities such as ultrasonography (USG), computed tomography (CT), and magnetic resonance imaging (MRI) are essential in characterizing these lesions based on morphology, internal architecture, and associated features. This article reviews the radiological approach to ovarian cystic lesions, emphasizing imaging characteristics that aid in differentiating benign from malignant entities, and highlights standardized reporting system.

Keywords: Ovarian cyst, Ultrasonography, MRI pelvis, Adnexal mass.**DOI:** 10.25258/ijcpr.18.2.44

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Introduction

Ovarian cystic lesions are common across all age groups and may present incidentally or with symptoms such as pelvic pain, abdominal distension, or menstrual irregularities. While the majority are benign, a small proportion represents malignant or borderline tumors, necessitating timely and accurate diagnosis. Radiological imaging is central to evaluation, reducing unnecessary surgical intervention while ensuring early detection of malignancy. Advances in imaging techniques have significantly improved lesion characterization and diagnostic confidence.

Ovarian cystic lesions can be broadly classified into: [1]

1. Functional cysts (follicular cysts, corpus luteum cysts)
2. Benign neoplastic cysts (serous cystadenoma, mucinous cystadenoma)
3. Endometriotic cysts
4. Dermoid cysts (mature cystic teratoma)
5. Borderline and malignant ovarian tumors

Imaging Modalities

Ultrasonography: Ultrasonography is the first-line imaging modality for evaluation of ovarian cystic lesions due to its accessibility, cost-effectiveness, and lack of ionizing radiation.

Transvaginal ultrasound provides superior resolution and allows assessment of cyst size and shape, wall thickness, internal septations, Solid components & papillary projections. Color Doppler imaging further aids in assessing vascularity, which is an important indicator of malignancy. [1]

Computed Tomography:

CT is not routinely used for primary characterization but plays an important role in staging of ovarian malignancies. CT helps in evaluating disease extent, peritoneal metastasi, lymphadenopathy and ascites. CT is particularly useful in emergency settings and in detecting complications such as torsion or rupture. [3]

Magnetic Resonance Imaging:

MRI is the problem-solving modality when ultrasound findings are indeterminate. MRI offers excellent soft tissue contrast and tissue characterization using various sequences. Key advantages include differentiation of hemorrhagic cysts from solid tumors, identification of fat in dermoid cysts and Characteristic “shading sign” in endometriomas. [2]

Aims and objective:

Radiological evaluation aims to identify specific imaging features that help classify these lesions accurately.

Material and Methods: This study used data of patients presented in radiology department in ACPM medical college and hospital from June

2025 to December 2025. 40 patients with suspected ovarian cystic lesions/ pathologies were evaluated with either USG, CT scan or MR Imaging. The study was carried out using prospective and observational (non interventional) type of study.

Result and Discussion

Table 1: Pathologies

Pathologies	Number	Percentage
Functional cysts (follicular cysts, corpus luteum cysts)	20	50%
Benign neoplastic cysts (serous cystadenoma, mucinous cystadenoma)	7	17.5%
Endometriotic cysts	4	10%
Dermoid cysts (mature cystic teratoma)	4	10%
Borderline and malignant ovarian tumors	5	12.5%

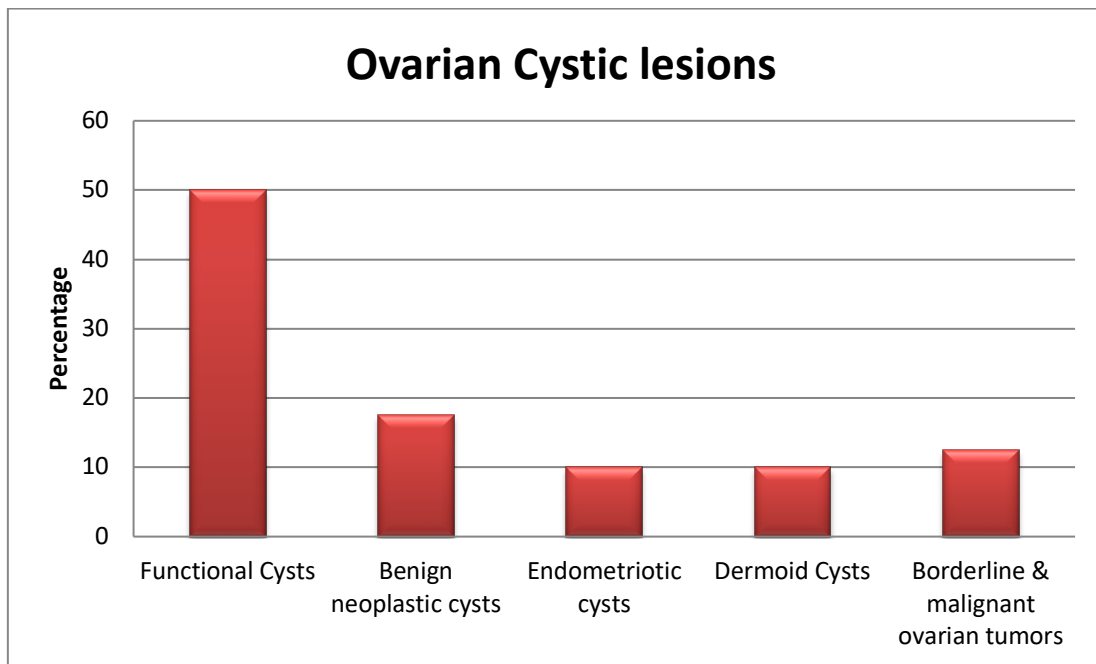


Figure 1: Ovarian Cystic lesions

In this study it was found that Functional cysts (follicular cysts, corpus luteum cysts) is most commonly occurring ovarian cystic lesions with approx. 50% cases. (n=20)

The second most common pathology in ovarian cystic lesions is benign neoplastic cysts including serous cystadenoma and mucinous cystadenoma). It is followed by Borderline and malignant ovarian tumors which is seen in 5 patients (12.5%). It was found that Endometriotic cysts & Dermoid cysts (mature cystic teratoma) are also seen in ovarian cystic lesions with approx. 10% cases (n=4). In this study; ovarian functional cystic lesions are most common among all cystic lesions of ovary and it is similar to results stated in American College of Obstetricians, Gynecologists Committee on Practice Bulletins - Gynecology. [5]

Conclusion

Radiological imaging is indispensable in the evaluation of ovarian cystic lesions.

Ultrasonography remains the primary modality, with MRI serving as a valuable adjunct in indeterminate cases.

Familiarity with characteristic imaging features and use of standardized reporting systems are essential for optimal patient management.

Continued advancements in imaging techniques will further refine diagnostic accuracy and improve clinical outcomes.

Case 1: 26 year old female complaining of mass and menstrual irregularity, USG and CT scan done; in which findings are below.

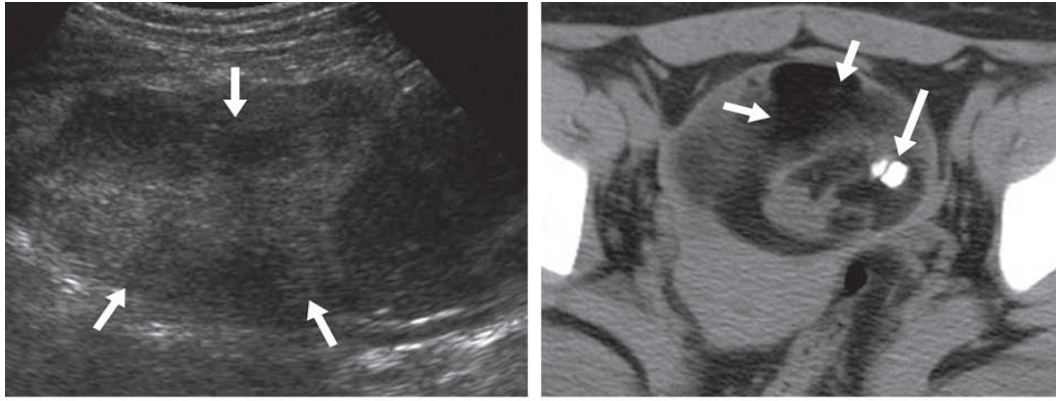


Figure 2: Mature cystic teratoma of the ovary in a 26-year-old woman. (a) US scan shows a heterogeneous echogenic mass (arrows). (b) Axial unenhanced CT scan shows intratumoral fat (small arrows) and calcifications (large arrow).

Case 2: 23 year old female complaining of pain and menstrual irregularity, USG done; in which findings are below.

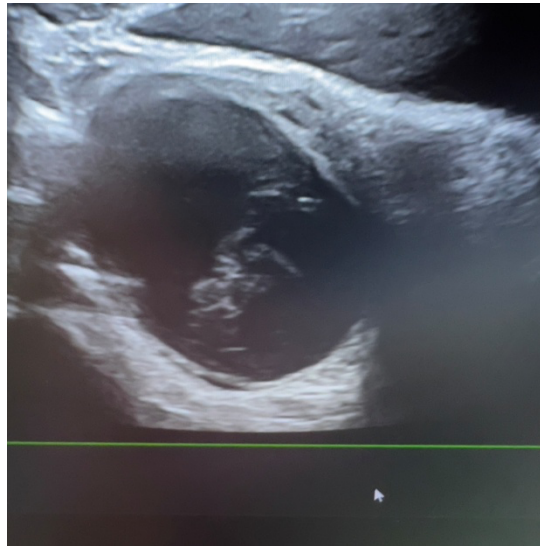


Figure 3: Right ovarian haemorrhagic cyst in a 23-year-old woman. US scan shows Cyst with retractile clot and echoes within.

Case 3: 30 year old female complaining of menstrual irregularity, USG done; in which findings are below.



Figure 4: Right ovarian Simple cyst in a 30-year-old woman. US scan shows simple Cyst without any soft tissue, septation or echoes.

Reference

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