

# Borderline Serous Papillary Tumor Arising in a Paraovarian Cyst: A Case Report and an Extensive Review of the Literature

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doi: <https://doi.org/10.38179/ijcr.v2i1.72>

Received: 2021.04.09  
Accepted: 2021.07.23  
Published: 2021.09.12

**Financial support:** None  
**Conflict of interest:** None  
**Patient Consent:** Patient's written consent for the publication of this case and images was taken.

## Abstract

**Background:** Paraovarian cysts are benign cysts that develop near the ovaries and fallopian tubes in the pelvic region. They can cause mass effects requiring excision. In rare cases, tumors may develop inside these cysts. These tumors may be benign, malignant, or borderline.

**Case Report:** A 26-year-old lady presented for excision of a paraovarian cyst. Pre-operative imaging showed the presence of few undulating folds at the periphery of the cyst. The patient underwent laparoscopic pelvic cystectomy without intra-operative drainage. Pathological examination of the specimen revealed a borderline serous papillary tumor protruding from the cyst wall.

**Conclusion:** The occurrence of a borderline tumor, also known as a tumor of low malignant potential, in a pre-existing paraovarian cyst is very rare and has only been reported few times in the literature. A thorough review of these cases showed that the most common imaging finding that raises suspicion for a borderline tumor within a paraovarian cyst is the presence of small intracystic projections within the unilocular adnexal cyst. However, since evaluating the presence of an intracystic tumor is not always possible, performing a fertility-preserving laparoscopic cystectomy without cyst content spillage, is recommended. If properly excised, the prognosis of this tumor is good, and recurrence is rare.

**Keywords:** *Borderline papillary tumor; Papillary projections; Paraovarian cyst; Excision; Case report.*

## Introduction

Paraovarian cysts, also called paratubal cysts, are simple cysts arising near the ovary or the fallopian tube [1]. They may be diagnosed incidentally or may cause symptoms resulting from the enlargement of the cyst, such as pelvic fullness, urinary urgency, and constipation. They may occasionally cause ovarian torsion. Diagnosis of paraovarian cysts can be made by ultrasonography or Magnetic Resonance Imaging (MRI), but the final diagnosis is by macroscopic and microscopic tissue examination [2]. They are usually benign but may sometimes develop into malignant tumors [3].

Borderline tumors, also known as tumors of low malignant potential, are tumors with no stromal invasion, yet with histopathological features of malignancy: cellular stratification, detachment from the site of origin, mitotic activity, and nuclear atypia [4]. The occurrence of a borderline tumor in a pre-existing paraovarian cyst is infrequent and has only been described in 18 cases reported in 15 publications across the literature [5]. No risk factors for a paraovarian cyst or the development of a borderline tumor within it are described in the literature [5].

We herein report a case of a 26-year-old lady who presented for symptoms of paraovarian cyst enlargement and underwent fertility-sparing laparoscopic excision of the cyst. A pathological examination later showed the presence of a borderline serous papillary tumor protruding from the cyst wall. An extensive literature review of the occurrence of borderline tumors in paraovarian cysts revealed the characteristics of these tumors with their presentations. Radiological and histopathological characteristics were also reviewed.

## Case Presentation

A 26-year-old previously healthy lady presented to our institution in December 2020 for recurrent abdominal distention, mild left-sided lower abdominal pain,

urinary urgency, and constipation. She described a feeling of pelvic fullness and pain that started in 2018, which incited a work-up where pelvic ultrasonography revealed the presence of a pelvic cystic mass. The cyst was aspirated in January 2020 using ultrasound guidance, and symptoms were relieved. The feeling of abdominal fullness recurred in October 2020 and the cyst was aspirated again, and she was advised to undergo surgical excision. No cytological studies of the aspirated cyst were performed in both aspirations.

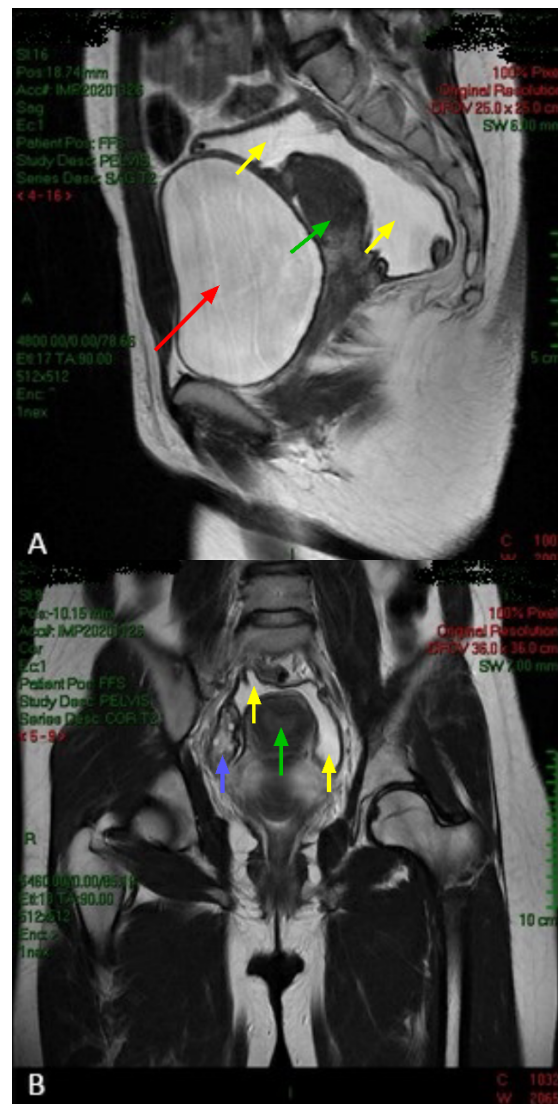


Figure 1: (A-B) MRI of the pelvis showing the fluid-filled cyst in the Douglas space, extending to the parauterine space on T2-weighted images in the sagittal cut (A) and coronal cut (B). The yellow, green, red and blue arrows indicate the pelvic cyst, the body of the uterus, the urinary bladder, and the right ovary, respectively.

Her last cyst aspiration was done under ultrasound guidance 1 month prior to presentation, and it yielded 3000 mL of cystic fluid from a huge abdominopelvic cyst of 20 cm. A follow-up MRI of the pelvis showed a residual shrunk cystic mass in the Douglas space extending to the parauterine space bilaterally. According to the radiologists' interpretation, the cyst was not related to the ovaries and was anatomically separated from them. MRI showed multiple bilateral ovarian subcentimetric simple follicular cysts and uterus of normal size with no evidence of masses and with a normal endometrial thickness (Fig. 1).

A repeat ultrasound was performed few days before the consultation. Results showed a 10.4 x 8.2 x 4 cm (176 mL) well-defined cystic lesion located in the pelvis, slightly lateralized to the left and anterior to the iliopsoas muscle and descending colon. The cyst had a well-defined regular wall, with a thickness of up to 3 mm, and no evidence of solid components or echogenic contents. Few undulating folds were seen at the periphery of this cystic lesion that appeared separate from the ovaries. The ovaries were of normal size with bilateral physiological ovarian follicles. The uterus was also of normal size with an adequate endometrial thickness (Fig. 2).

On presentation, the patient's vital signs were unremarkable with an SpO2 of 97%, heart rate of 73, and blood pressure of 102/64 mm Hg. The physical exam did not reveal any abdominal distention or tenderness. Laboratory tests revealed mild microcytic anemia with a hemoglobin of 11.6 g/dL with a mean corpuscular volume of 79.2 fL. Otherwise, the white cell count and platelet count, electrolytes levels and urinalysis were within normal, and the serum  $\beta$ -hCG (beta human chorionic gonadotropin) test was negative (Table 1).

The patient was admitted for laparoscopic pelvic exploration and cyst excision. Although extending bilaterally, the cyst was closer to the right ovary and was adherent to the right fallopian tube. The

cyst was easily separated from the right ovary and was excised and removed intact without intra-operative drainage along with the right fallopian tube (Fig. 3). The patient's postoperative course was uneventful, and she was discharged three days after surgery.

Table 1: Laboratory tests for the patient upon presentation. Abbreviations: CBC: Complete Blood Count; WBC: White Blood Cells; RBC: Red Blood Cells; HGB: Hemoglobin; HCT: Hematocrit; MCV: Mean Corpuscular Volume; PLT: Platelets.

Test	Result	Reference range
<b>CBC &amp; Differential</b>		
WBC	5.69	5.2 – 12.4 x10 <sup>3</sup> / $\mu$ L
RBC	4.48	4.2 – 5.4 x10 <sup>6</sup> / $\mu$ L
HGB	<b>11.6</b>	12 – 16 g/dL
HCT	35.4	34 – 47 %
MCV	79.2	81 – 99 fL
MCH	25.8	27 – 31 pg
PLT	271	150 – 400 x10 <sup>3</sup> / $\mu$ L
<b>Electrolytes</b>		
Sodium	139	136 – 145 mEq/L
Potassium	5.0	3.5 – 5.1 mEq/L
Chloride	104	98 – 107 mEq/L
Bicarbonate	24	22 – 29 mEq/L
Creatinine	0.72	0.51 – 0.95 mg/dL
<b>Urinalysis</b>		
Normal: clear and normal color, pH = 5, No WBCs, nitrates, leukocyte esterase, blood, glucose, proteins, bilirubin or ketones.		

Pathology results confirmed an unremarkable fallopian tube and a paratubal cyst. The cyst appeared to be a simple cyst measuring 11.5 x 10.5 x 4.5 cm and containing a clear yellow fluid. The thick fibrous cyst wall was smooth with a small inner 0.5 x 0.3 cm focal papillary projection (Figure 4A). The cells of the papillae were columnar with increased nuclear size and visible nucleoli and were associated with cellular tufting, consistent with an intraluminal borderline serous

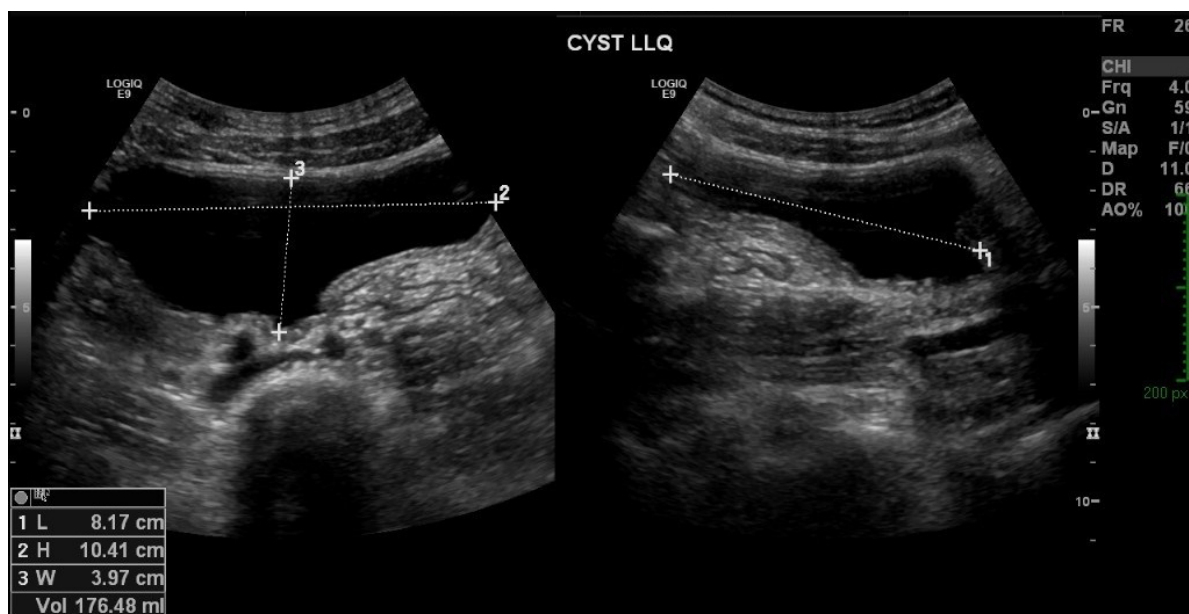


Figure 2: Pelvic US showing the pelvic cyst slightly lateralized to the left, anterior to the iliopsoas muscle and descending colon, and demonstrating a well-defined regular wall.

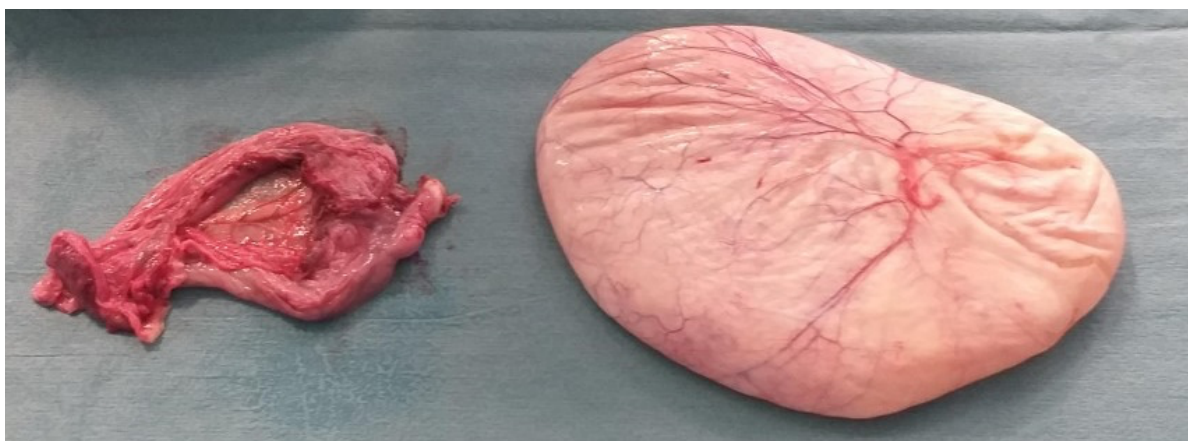


Figure 3: Surgical excision of the cyst and the right fallopian tube.

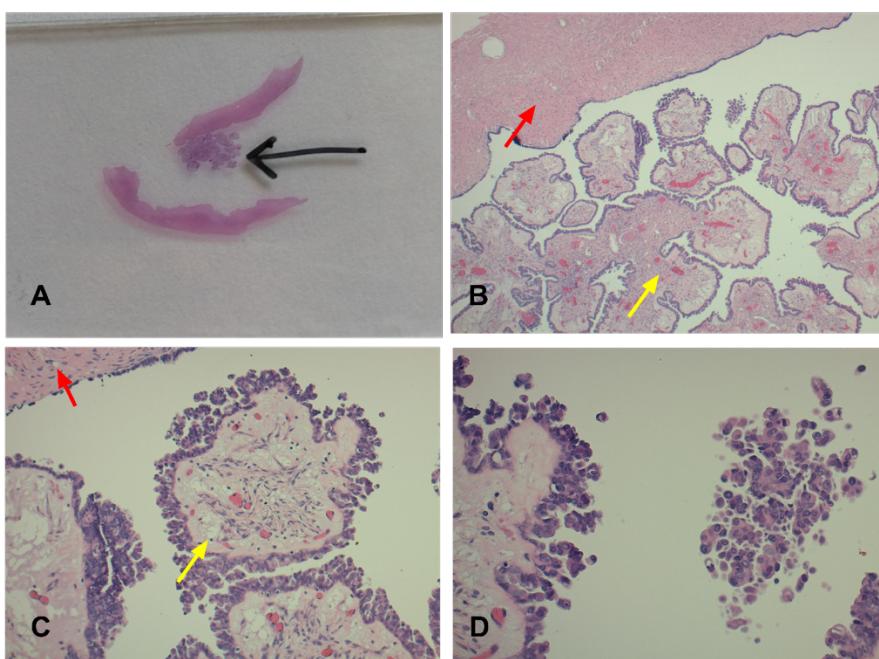


Figure 4 (A-D): Pathological examination of the paraovarian cyst with the borderline serous papillary tumor. (A) showing the gross appearance of the papillary projections (black arrow) from the cyst wall. (B-D) showing the pathological characteristics of the papillary tumor (yellow arrow) protruding from the cyst wall (red arrow), at 10x, 40x and 100x magnification in figures B, C and D respectively.

papillary tumor (Figure 4B-D). Follow-up of the patient after three months revealed complete resolution of the presenting symptoms.

## Discussion

Paraovarian cysts are also known as paratubal cysts since they arise as simple cysts near the ovary or the fallopian tube [1]. They have been reported in women of all ages, and their incidence is estimated to be around 10-20% of adnexal masses [6]. Rarely, tumors such as borderline papillary tumors may arise in a paraovarian cyst. Diagnosis of such tumors may be difficult pre-operatively, and management strategies have varied between previous reports.

### *Radiological diagnosis of paraovarian cysts*

Anatomically, a paraovarian cyst is located within the peritoneal space. The findings on ultrasound imaging are usually specific as in the case of our patient [6]: paraovarian cysts appear as a simple unilocular cyst separate from a normal ipsilateral ovary [7]. However, sonographic diagnosis is not always feasible, as pre-operative diagnosis of paraovarian cysts was possible in only 6.6% of cases in one study by Liu et al. (2019) [8], and in up to 44% of cases in an older study by Jung Sik Kim et al. (1995) [2]. This explains why the diagnosis was missed in this case before laparoscopic exploration.

Paraovarian cysts can be very small but can also fill the whole pelvis, and have an average size of around 8 cm [9]. The size of the cyst in this patient is considerably large, knowing it was 20 cm on ultrasound upon initial presentation and maintained a maximum diameter of 10.4 cm on MRI after drainage.

### *Complications of paraovarian cysts*

A feared complication of paraovarian cysts is malignant transformation. However, there is a paucity of data to accurately describe the risk of developing malignancy in paraovarian cysts [2]. In a retrospective 10-year study performed at the University

of Southern California, Los Angeles, California, among 168 women with paraovarian cysts with a mean age of 31.4, three had malignancies (2%) [3]. In another Chinese study, 4 out of 117 cases of paraovarian cysts were considered as low-grade malignancies (3.4%)[10]. According to Moyle et al. (2010), neoplasms arising from paraovarian cysts can be benign, or malignant such as papillary serous cystadenoma, serous cystadenocarcinoma, endometrioid cystadenocarcinoma, or mucinous cystadenocarcinoma [6].

### *Management of paraovarian cysts*

Management of small asymptomatic simple cysts is usually recommended to be only conservative as most will regress spontaneously, with an average of 22% decrease in size reported in one series of small simple cysts upon follow-up [11]. According to García-Tejedor et al. (2015), due to the low risk of malignant transformation, some lesions may be monitored with imaging [12]. However, this is debatable among different society guidelines. The definitive operative management is fertility-sparing laparoscopic exploration and excision [13]. Some references suggest that percutaneous drainage and sclerosis may be indicated [14], especially in small cysts (smaller than 7 cm [15]) since larger cysts would require excision. Other reports describe the recurrence of cyst enlargement, even leading to ovarian torsion, after surgical drainage [16].

Operative management is warranted when the cysts are symptomatic, large, or complex. Large paraovarian cysts are at a higher risk of causing acute or chronic symptoms and are more likely to require invasive management [11]. Also, some ultrasound findings in complex cysts may require operative management. These findings may indicate a higher risk for malignant transformation, and they include the presence of solid components and mural masses [17]. The most common is intracystic papillary projections, which was the case reported here [18]. Interestingly, a

study supports an under-reported incidence of papillary excrescences in paraovarian cysts, reaching 22% of presenting cysts [19]. This study recommends a more frequent use of endo bag devices in laparoscopic excision of paraovarian cysts to prevent spillage of cystic fluid in case of neoplastic tissue inside the fluid [19].

#### *Borderline tumor within a paraovarian cyst*

Gross examination of the paraovarian cyst reported a 0.5 x 0.3 cm focal papillary projection consistent with a borderline serous papillary tumor on pathologic examination. Paratubal/paraovarian serous borderline tumors are also called paratubal/paraovarian serous cysts of low malignant potential.

The diagnosis of borderline malignancy (or “carcinoma of low malignant potential”) depends on light microscopic criteria adopted for epithelial tumors of the ovary: a form of common epithelial tumors that are intermediate between morphologically benign and malignant. This type of tumor has some, but not all, of the morphological features of malignancy: stratification of the epithelial cells, apparent detachment of cellular clusters from their sites of origin, mitotic activity, and intermediate nuclear abnormalities. However, invasion of the adjacent stroma should be absent [4]. Most cases of borderline tumors arising from a paraovarian cyst described in the literature were serous, borderline tumors; only a few cases reported mucinous, borderline tumors [20], or endometrioid borderline tumors [21], arising in a paraovarian cyst.

An extensive literature review of borderline tumors arising in paraovarian cysts was performed on PubMed using the following keywords: *Paraovarian cyst* OR *Paratubal cyst* AND *Borderline tumor* OR *Low malignant*. Only 18 cases of serous borderline tumors in paraovarian cysts have been reported in a series of 15 publications. The case we report herein is the 19th case.

Table 2 summarizes the patients’

characteristics and Table 3 summarizes radiological findings, operative management, tumor characteristics, and recurrence outcomes in the reported cases.

#### *Characteristics of patients with borderline tumor in a paraovarian cyst*

The age of the reported patients at diagnosis of the borderline tumors ranges from 14 to 85 with a mean of 38 years old, knowing that paraovarian cysts are most commonly diagnosed in the 3rd to 4th decade of life [22]. The majority (84.2%) of paraovarian cysts with borderline serous tumors were in the right adnexa. Only three cysts from the 19 reported cysts (15.8%) arose from the left adnexa. The largest diameter of the paraovarian cysts giving rise to borderline tumors was remarkably variable and ranged from 1 cm to 20 cm, with an average size of  $9.4 \pm 6.0$  cm.

Eight paraovarian cysts out of the reported 19 cases were diagnosed incidentally and were asymptomatic. This high proportion (42.1%) of paraovarian presentation is in line with previous reports [13]. Four cysts (21%) presented with menstrual problems, four other cysts with chronic pelvic pain and fullness. Three cysts (15.8%) presented with an acute ovarian torsion episode, which is in line with the previously estimated incidence of ovarian torsion as a presentation of a paraovarian cyst (18.5%) [13].

#### *Serum tumor markers*

CA-125 tumor marker levels were high in only 3 three patients among the 14 patients (21.4%) with reported laboratory tests. Among these three, one patient had only a mild elevation (46.2 U/ml with the normal upper limit is 35 U/ml [23]), while another had previously diagnosed endometriosis (a common cause of CA-125 elevation [24]). Elevated CA-125 levels were not previously reported to be associated with paraovarian cysts. It seems that a borderline tumor arising in a paraovarian cyst can only be rarely associated with an elevated CA-125 level.

Table 2: Characteristics of patients reported to present with borderline serous papillary tumors arising in a paraovarian cyst. (NA: Not Applicable)

#	Case Report	Age	Location of the cyst	Size (cm)	Presentation	CA-125 level
1	Chandraratnam & Leong (1983) [20]	53	Right	13 x 9 x 8	Incidental finding during abdominal surgery	NA
2	De Areia et al. (2004) [21]	23	Right	11.8 x 10.2 x 10	Abdominal enlargement and pelvic pain	Normal
3	Seamon et al. (2009) [26]	26	Right	12.5	Ovarian torsion	NA
4	Kumbak et al. (2010) [29]	39	Left	6 x 3	Incidental finding during C-section	Normal
5	Terek et al. (2011) [27]	19	Left	10	Ovarian torsion with hemodynamic instability	NA
6	Shin et al. (2011) [28]	27	Right	16	Left flank pain	Normal
7	Alaoui et al. (2012) [30]	38	Right	10 x 5	Ovarian torsion	Normal
8	Kiseli et al. (2012) [1]	33	Right	7 x 5	Menstrual irregularities and oligomenorrhea	Normal
9	Suzuki et al. (2013) [31]	38	Right	5.2 x 5.1	Incidental finding	Normal
10	Zhao et al. (2015) [32]	43	Right	4 x 3 x 3	Incidental finding	Normal
11	Zhao et al. (2015) [32]	75	Right	2.5 x 2.5 x 2.5	Incidental finding	Normal
12	Zhao et al. (2015) [32]	35	Right	3 x 3 x 2.5	Incidental finding	Normal
13	Zhao et al. (2015) [32]	43	Right	5 x 4 x 4	Chronic menorrhagia	Significantly elevated (patient had endometriosis)
14	Lee et al. (2016) [33]	17	Right	19	Menstrual irregularities and mild dysmenorrhea	Normal
15	Kajiyama et al. (2017) [15]	22	Right	6.5 x 4.4	Acute pelvic pain due to cyst rupture	Extremely elevated: 28,831 U/mL
16	Baek (2019) [25]	61	Left	6 x 5 x 4	Incidental finding	Normal
17	Chao et al. (2020) [34]	14	Right	20 x 16	Menstrual irregularities and pelvic fullness	Slightly elevated: 46.2 U/ml
18	Mehawej et al. (2020) [5]	85	Right	1 x 1	Incidentally finding during abdominal surgery	NA
19	Current case report	26	Right	20	Abdominal distention, pelvic pain, urinary urgency and constipation	NA

Table 3: Radiological findings, operative management, tumor characteristics and recurrence outcomes in the reported cases of borderline tumors arising in paraovarian cyst (NA: Not Applicable; US: Ultrasound imaging; CT: Computed Tomography imaging; MRI: Magnetic Resonance Imaging)

#	Case Report	Radiological findings	Operative management	Borderline tumor findings	Recurrence
1	Chandraratnam & Leong (1983) [20]	Undetected cyst on US	Open cystectomy and oophorectomy	A sharply circumscribed 9 x 6 x 1 cm intracystic papillary growth	None after 30 m
2	De Areia et al. (2004) [21]	US: unilocular cyst with internal vegetations	Open cystectomy	Several papillary ingrowths	None after 5 m
3	Seamon et al. (2009) [26]	CT: simple adnexal cyst	Laparoscopic cystectomy, salpingoophorectomy, omentectomy, bilateral pelvic-aortic lymphadenectomy, and multiple pelvic and abdominal peritoneal biopsies	Multiple papillary excrescences: FIGO stage IC extending to fallopian tube	None after 12 m
4	Kumbak et al. (2010) [29]	Undetected cyst on US	Open cystectomy with fertility-preserving staging procedures	Multiple papillary structures lined by serous epithelium	Recurrence in ovary after 9 m: cystectomy performed again with no recurrence after 3 m
5	Terek et al. (2011) [27]	US: adnexal cyst with solid projections	Open cystectomy	Multiple papillary protrusions	None after 7 m
6	Shin et al. (2011) [28]	US: adnexal cyst with intramural nodules and thickened wall CT: pelvic cyst with enhancing solid intramural nodules	Open paratubal cystectomy and fertility-sparing surgical staging procedures	Multiple papillary projections up to 2.1 cm in greatest dimension	None after 20 m
7	Alaoui et al. (2012) [30]	US: oblong adnexal cyst suggestive of hydrosalpinx	Open cystectomy	Rare papillary projections measuring 0,5cm	None after 12 m
8	Kiseli et al. (2012) [1]	US: pelvic cyst with papillary projections inside MRI: ovarian cyst with papillary projections	Open cystectomy with right ovarian wedge resection	Multiple papillary projections	None after 12 m



9	Suzuki et al. (2013) [31]	US: unilocular cyst with an 8 mm solid part within the tumor	Open cystectomy with subtotal omentectomy	A 10-mm-sized solid protrusion	None after 12 m
10	Zhao et al. (2015) [32]	US: oval anechoic paratubal cyst with single intracystic papilla	Laparoscopic cystectomy	One intra-papilla of 1.3 cm	None after 49 m
11	Zhao et al. (2015) [32]	US: round hypoechoic paratubal cyst with multiple intracystic papillae	Laparoscopic cystectomy with total hysterectomy and bilateral salpingo-oophorectomy	Four mini-papillae of 0.1 - 0.3 cm diameter	None after 37 m
12	Zhao et al. (2015) [32]	US: oval hypoechoic paratubal cyst with single intracystic papilla	Laparoscopic cystectomy and salpingectomy	One papilla of 1 cm	None after 32 m
13	Zhao et al. (2015) [32]	US: oval hypoechoic paratubal cyst with no intracystic papillae	Laparoscopic cystectomy with total hysterectomy and bilateral salpingo-oophorectomy	Two papillae of 0.1 - 0.2 cm	None after 5 m
14	Lee et al. (2016) [33]	US: ovarian cystic mass CT: ovarian cyst with enhancing intramural papillary projection	Laparoscopic salpingectomy and ovarian wedge resection	A single papillary projection	None after 3 m
15	Kajiyama et al. (2017) [15]	US: collapsed unilocular cyst near the ovary with multiple papillary projections CT: unilocular cyst with a thick wall and papillary projections	Laparoscopic cystectomy with unilateral salpingo-oophorectomy, omentectomy, and peritoneal biopsy	Multiple papillary projections of FIGO stage Ic	None after 12 m
16	Baek (2019) [25]	Serial US: a growing ovarian unilocular cyst with a thin wall, no septa and no papillary projections CT: ovarian unilocular cyst without enhancing solid intramural nodules	Laparoscopic single-site (LESS) surgery	Small polypoid lesions on the internal surface of the cyst	None after 24 m
17	Chao et al. (2020) [34]	US: adnexal cyst with an upper pole projection CT: unilocular ovarian cyst with peripheral mural components	Laparoscopic aspiration followed by cystectomy	2 intracystic solid excrescences characterized by hierarchically branching papillae	None after 3 m
18	Mehawej et al. (2020) [5]	Undetected cyst on US	Open simple cystectomy	Inner cyst lining with branching papillae	None after 3 m
19	Current case report	US: pelvic cyst with regular wall and few undulating folds at the periphery	Laparoscopic cystectomy	Small inner 0.5 x 0.3 cm focal papillary projection	NA

### *Radiological findings of borderline tumor within a paraovarian cyst*

Most paraovarian borderline tumors had some radiological predictive findings. In fact, among 19 patients imaged pre-operatively with either ultrasound, Computed Tomography (CT) scanning, or MRI, 13 patients (68.4%) showed cysts with papillary projections or mural solid components suggestive of intracystic tumors. Three patients (15.8%) had simple unilocular cysts on imaging with no extramural or intracystic components. Three patients (15.8%) had no detected cysts on imaging, and the cysts with borderline tumors were diagnosed during routine abdominopelvic surgery.

### *Operative management of paraovarian cyst with borderline tumor*

Operative management decisions varied for each patient. Approaches were almost equally divided between laparoscopic and laparotomic, with 10 out of the 19 cases (52.6%) undergoing a laparoscopic cystectomy and 9 cases (47.3%) undergoing a laparotomic approach. The laparotomic cystectomy was most common before 2015, but most of the surgeries afterward were laparoscopic. Most did only a simple cystectomy with no staging procedures. In 15 out of the 19 patients, it was preferred to perform a fertility-sparing operation, but when a patient was old or when there were concerns of tumor progression beyond stage 1A, oophorectomy or hysterectomy was concurrently performed [25-27].

### *Pathological characteristics of borderline papillary tumor within a paraovarian cyst*

Post-operative gross and pathological examination of the specimens confirmed that the papillary lesions projecting inside the paraovarian cyst are borderline serous papillary tumors. Their size varied widely from 1 mm to 9 cm, with an average of 1.8 cm. International Federation of Gynecology and Obstetrics FIGO Ovarian Tumor Staging was used to describe tumors arising in paraovarian cysts. Most tumors in the reported cases (89.5%) were

stage 1A, limited to a cyst with an intact capsule and no tumor on the surface [24]. Tumor staging as FIGO stage 1C was reported in only two patients. In one of these patients, the tumor extended to the surface of the cyst [27]. In another patient, the paraovarian cyst was ruptured upon presentation, which warranted staging due to capsule rupture [17].

### *Post-operative prognosis of borderline tumor within paraovarian cyst*

Among the 18 patients followed up for an average period of 16 months after cyst with borderline tumor excision, all but one (94.4%) did not show recurrence. This indicates a very low risk of recurrence and predicts a relatively good prognosis. Interestingly, the only cyst that reportedly recurred was an incidental finding of a medium-sized cyst (6 x 3 cm) in an average-aged woman (39 years old) [28].

## **Conclusion**

Borderline papillary tumor arising in paraovarian cyst is a rare condition reported only 18 times in the literature. We report here the 19th case and compare the different and diverse occurrences and characteristics of these cases.

The age of the patients at presentation varied widely from adolescent girls to postmenopausal women. The paraovarian cyst and the papillary projections giving rise to the borderline serous tumors both varied in size from minutely small to considerably large. Cyst diagnosis also ranged from being an incidental finding to presenting with an acute pain episode suggestive of adnexal torsion in other cases. The most common imaging finding suggesting a borderline tumor within a paraovarian cyst was the presence of a unilocular adnexal cyst with small intracystic projections.

Most cases were FIGO stage 1A, which explains the recommendation of performing a fertility-preserving laparoscopic cystectomy without cyst content spillage, as evaluation of the presence of an intracystic tumor is not

always possible.

More invasive staging procedures such as bilateral salpingo-oophorectomy, hysterectomy, peritoneal biopsies, and paraaortic lymph node dissection are not usually necessary for typical cases of unilocular paraovarian cyst with borderline serous tumor. Recurrence of such tumors after excision was also found to be very rare and reported only once in the literature. Despite missing the diagnosis preoperatively, our patient was adequately treated and remains disease-free on a 3-months follow-up.

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