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Ovarian collision tumour consisting of a fibroma and a serous cystadenoma: A case report

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ABSTRACT

This article reports a case of an ovarian collision tumour consisting of an ovarian fibroma and a serous cystadenoma. A 60-year-old woman exhibited symptoms of post-menopausal bleeding and abdominal pain persisting for three months. Computerized tomography identified a solid mass with a cystic component in the right adnexa, and the patient underwent staging laparotomy. Gross examination of the right ovary revealed a cystic tumour with adjacent solid mass. The histopathological analysis identified a cystic mass that matched the characteristics of a serous cystadenoma, with an adjacent solid mass that matched the characteristics of a sex-cord stromal tumour, both located in the right ovary. Additionally, a small cyst that matched the characteristics of a serous cystadenoma was found in the left ovary. There have been only seven previously reported examples of this specific mix of ovarian tumours. Mostly affecting patients above 60 years of age, although tumour markers levels are normal, such cases may present with a complex clinical scenario, as in this case, and demand a comprehensive diagnostic and therapeutic approach.

1. Introduction

Ovarian tumours are classified into three categories based on their source: epithelial (90%), germ cell (3%), and sex-cord-stromal (2%) [1]. Collision tumours are characterized by the coexistence of two neighbouring tumours in an organ, each with its own separate histological characteristics and without any mixing of histological features [2]. Collision tumours can be found in various organs, including the oesophagus, stomach, liver, lung, and thyroid gland. However, there are rather few in the ovaries [3]. In the case reported here, an unusual combination of tumours was found in the ovary of a 60-year-old post-menopausal woman: a right ovary fibroma (a sex-cord stromal tumour) and a bilateral serous cystadenoma (an epithelial tumour). Collision tumours present a complex clinical scenario that demands a comprehensive diagnostic and therapeutic approach.

2. Case Presentation

A 60-year-old woman visited the gynecology clinic due to post-menopausal bleeding and left lower abdominal pain persisting for three months. She had given birth to five children and had no significant surgical and medical history.

2.1. Diagnostic Assessment

The physical examination showed a supple and normal abdomen without tenderness or detectable lumps. The levels of tumour markers (CA125, CA15.3, CA19.9 and CEA) were within the normal range. A computerized tomography (CT) scan of the abdomen and pelvis with intravenous contrast showed a significant solid enhancing lesion with a cystic component in the right adnexa measuring 8.8 cm in maximum dimension, a slightly thickened endometrium with a dense focus inside, and a small, varied mass in the left posterolateral aspect of the uterus. No signs of free intraperitoneal fluid or lymphadenopathy were found.

The patient had staging laparotomy, including peritoneal washing, total abdominal hysterectomy, bilateral salpingoophorectomy, sampling of pelvic and para-aortic lymph nodes and omental biopsy. The samples were subjected to histological examination. The right ovarian mass measuring 7.5 cm in maximum diameter had a smooth external surface, and upon examination it displayed a multilocular cystic component with a smooth internal surface as well as an adjacent, solid yellow component (Fig. 1). The enclosed fallopian tube exhibited a simple paratubal cyst. A

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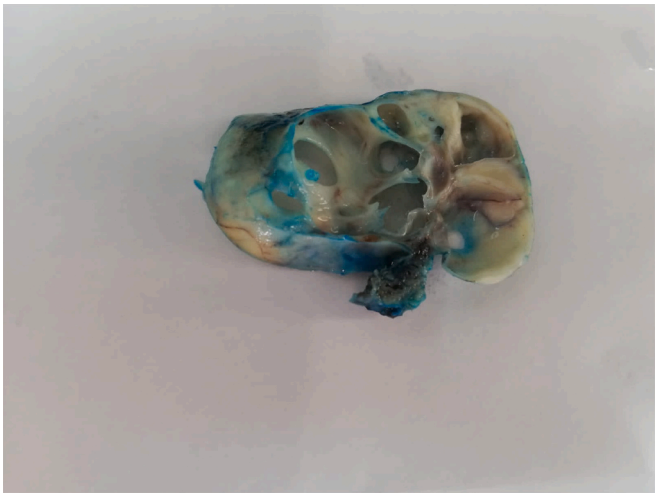

Fig. 1. Photograph of the right ovarian mass. A multilocular cystic component with a smooth inner surface (the outer surface was inked blue) along with an adjacent yellow solid component. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

uterine submucosal fibroid was detected. The left ovary was examined and found to have a cyst measuring 4.0 cm in maximum dimension. The cyst had smooth surfaces both inside and outside, with an attached unremarkable fallopian tube. The omentum, pelvic, and para-aortic lymph nodes showed no significant abnormalities upon visual examination.

2.2. Microscopic Findings

The analysis of the tissue samples taken from the solid part of the right ovarian mass showed a clearly defined, lobulated tumour consisting of bundles of spindle- to oval-shaped cells that appeared uniform. These cells had small round nuclei located in the centre, noticeable nucleoli, and pale to pinkish cytoplasm. There was also some collagenous stroma present between the cells (Fig. 2A and B). No indications of nuclear hyperchromasia, pleomorphism, mitotic activity, or necrosis were found. The solid component did not contain any theca components or transitional cell lobules, despite thorough sampling. The immunohistochemical analysis showed that the cells exhibited localized positivity for inhibin and calretinin, whereas they were negative for GATA3. The application of reticulin special staining revealed a pericellular staining pattern (Fig. 2C). The overall morphologic and immunophenotypic characteristics were compatible with fibroma.

Fig. 3 displays the histology of the thin cyst wall that was covered with a single layer of ciliated cuboidal epithelium. The sections from the cystic component of the ovarian mass also revealed a small area of papillae. An epithelial lining was seen at the boundary between the solid region and the cystic part, suggesting that the cystic component was not a result of degradation of the fibroma. Therefore, the patient had concurrent fibroma and serous cystadenoma located in the right ovary. An ovarian serous cystadenoma was detected in the left ovary. Both fallopian tubes exhibited no notable abnormalities. The presence of cystic atrophy in the endometrium of the uterus and Nabothian cysts in the cervix were identified. The omentum and pelvic lymph nodes showed no significant abnormalities.

2.3. Follow-Up

The patient did not receive any further treatment. Upon follow-up, she was doing well after surgery with no complications.

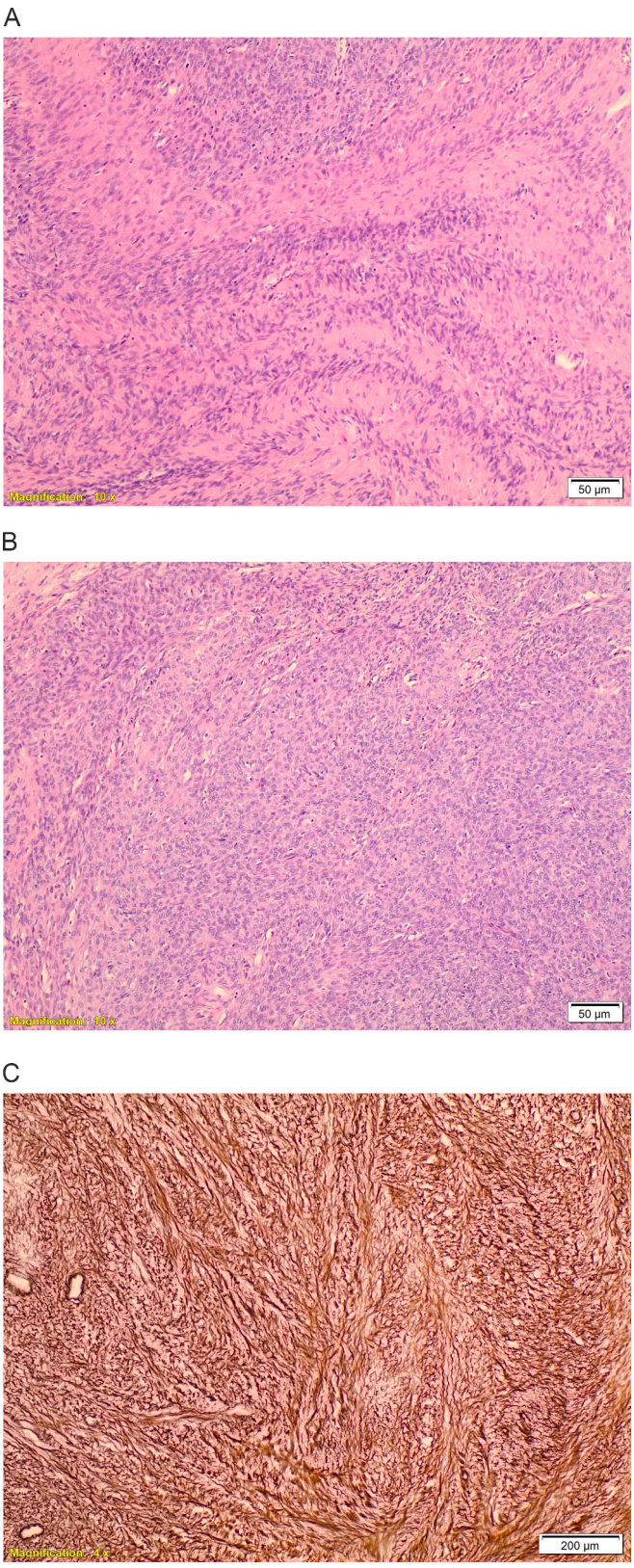

Fig. 2. Histology of the solid component of the ovarian mass. (A) Fascicles of spindle cells (hematoxylin and eosin stain, X10). (B) Bland-looking spindle- to oval-shaped cells arranged in the fascicles (H&E, X10). Reticulin special stain (C) highlighting pericellular positivity (reticulin stain, X4).

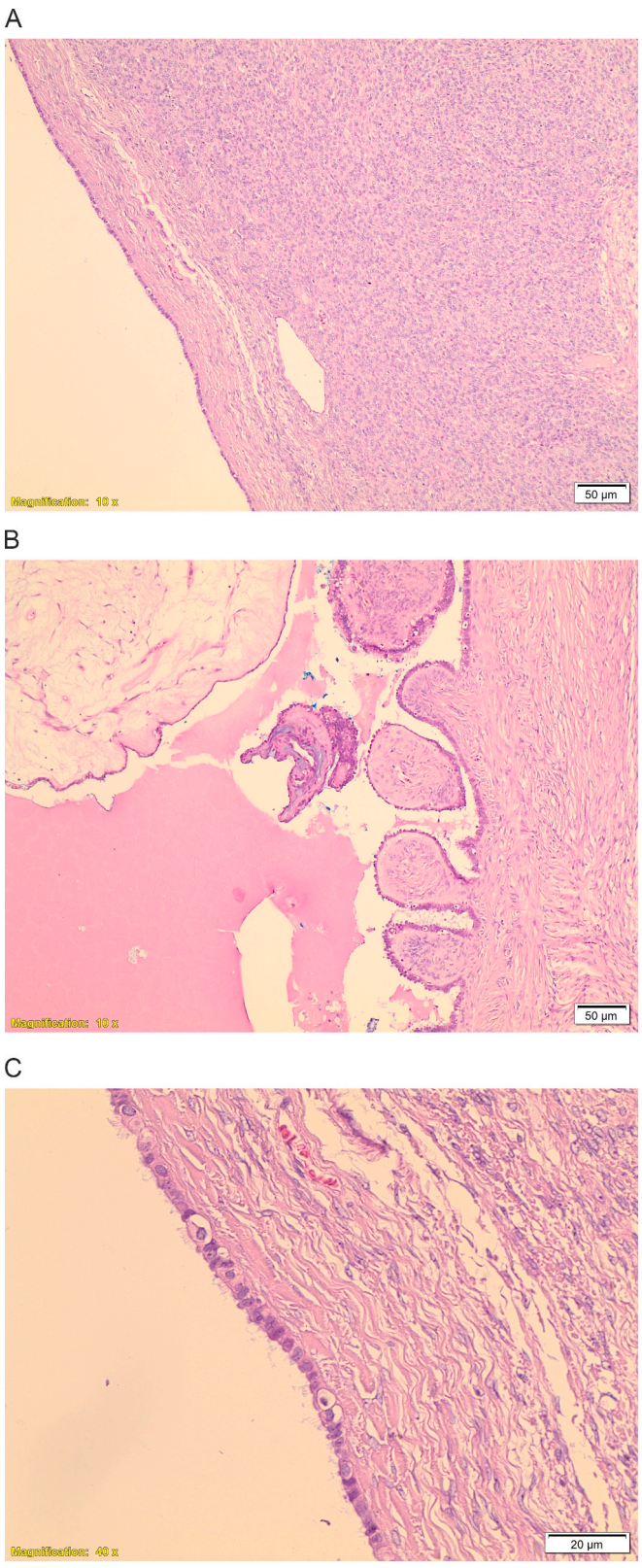

Fig. 3. Histology of the cystic component of the ovarian mass. (A) Interface between the solid area and the cystic part of the ovarian mass (H&E, X10). (B) Focal area of small papillae formation (H&E, X10). (C) Histology of the cystic component illustrating a simple ciliated cuboidal lining (H&E, X40).

3. Discussion

Serous cystadenoma is a benign ovarian tumour composed of cells that resemble the epithelium of the fallopian tube. Serous cystadenoma can develop at any age, and it may be symptomatic or discovered incidentally [1]. Ovarian fibroma is a benign tumour composed of fibroblastic cells inside a stroma that contains varying amounts of collagen. Ovarian fibroma can manifest at any age, although it predominantly presents in women of middle age, at an average age of 48 years. Patients with ovarian fibroma may have symptoms associated with the tumour or sporadic hormonal manifestations. Ovarian collision tumours are uncommon.

This case of a 60-year-old woman with post-menopausal bleeding and left lower abdominal pain presented a complex clinical scenario that demanded a comprehensive diagnostic and therapeutic approach. Initial physical examinations did not reveal any alarming abdominal findings, and tumour marker levels were within the normal range, suggesting a non-specific clinical presentation. However, a CT scan of the abdomen and pelvis revealed a 8.8 cm solid enhancing lesion in the right adnexa, alongside other concerning features such as a thickened endometrium with a dense focus and a suspicious mass in the left posterolateral aspect of the uterus. The subsequent surgical removal of the mass and histological exam provided valuable insights into the nature of the ovarian mass.

As summarized in Table 1, the initial report of this condition was documented in 1946 by Copland and Coleman in a woman aged 70 years [3]. Additional cases have been documented from 2012 to 2023 [[2–8]]. Most of the patients were over the age of 60 (with an average age of 62 years).

The histological analysis showed that the right ovarian mass contained a combination of cystic and solid yellow regions. These findings aroused suspicions of a multifaceted ovarian abnormality, which can involve a range of possibilities, including both benign and malignant disorders. The adjacent anatomical structures, including the fallopian tube and uterus, exhibited pathological alterations, contributing to the intricacy of the case. Although the ocular examination showed normal appearance of the omentum and lymph nodes, it could not offer a conclusive diagnosis. This example highlights the significance of employing a multidisciplinary team, which includes gynaecologists, radiologists, and pathologists, to diagnose and handle intricate gynaecological problems. Additional examinations, such as

Table 1
Previously reported cases of concurrent ovarian fibroma and serous cystadenoma, age and laterality.

Case diagnosis	Age (y)	Laterality	Reference#
A collision between fibroma and serous ovarian cystadenoma mimicking carcinoma	63	Left	[2]
Bilateral concomitant fibroma and serous cystadenoma	70	Right and left	[3]
Ovarian fibroma with serous cystadenoma - an unusual combination	56	Right	[4]
An ovarian collision tumour in a postmenopausal woman mimicking malignancy	80	Left	[5]
Bilateral ovarian fibromas with concomitant unilateral serous cystadenoma: a rare case with review of literature	64	Right and left	[6]
Ovarian fibroma with serous cystadenoma - a rare case report	55	–	[7]
A rare case of concurrent ovarian lesions: ovarian fibroma and serous cystadenoma in contralateral ovaries	55	Right and left	[8]
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immunohistochemistry and molecular analyses, may be required to confirm a definitive diagnosis and inform therapeutic interventions.

The cysts were present bilaterally in four of the cases reported in the literature, unilaterally on the left side in two cases, and unilaterally on the right side in one case. Ovarian collision tumours commonly manifest in post-menopausal women, and they are frequently misinterpreted as carcinomas based on clinical and radiographic evaluations. Thus, it is crucial for both gynaecologists and pathologists to be knowledgeable about this particular mix of ovarian collision tumours in order to distinguish them from malignant ovarian tumours. The potential diagnoses for a collision tumour of serous cystadenoma and fibroma include ovarian fibroma with cystic degeneration, cystadenofibroma, and Brenner's tumour. The fibromas with cystic degeneration do not show any presence of lining. However, the collision tumour in the present case clearly had a noticeable lining in the cyst and did not exhibit any glandular components, while serous cystadenofibromas typically have glandular components within the fibrous stroma. Ultimately, the fibrous part of the Brenner tumour might outgrow the epithelial part, rendering it invisible if not properly sampled. No urothelial nests were detected following sufficient sampling in this instance.

In conclusion, the current case demonstrates the difficulties in detecting intricate gynaecological diseases in post-menopausal women with vague symptoms. Sometimes, the initial clinical evaluation and imaging results may not provide a clear answer; therefore then becomes necessary to do surgery and examine the tissue under a microscope to discover the exact type of the ovarian mass.

The existence of different pathogenic alterations in the reproductive organs highlights the necessity for comprehensive and interdisciplinary treatment in such instances. To accurately diagnose the patient and determine the best therapy options, a thorough evaluation that includes immunohistochemistry and molecular investigations may be necessary. This example illustrates the intricacy of gynaecological pathology and underscores the significance of interdisciplinary collaboration in attaining optimal treatment results. Moreover, this article reports the eighth case of a rare combination of serous cystadenoma and ovarian fibroma to increase the awareness of the existence of this collision tumour combination. Most of the patients were post-menopausal (older than 60 years), and more often had bilateral cysts. Careful examination and diagnosis are required to avoid misdiagnosis and overtreatment.

Contributors

Anwar Rjoop contributed to the conception of the case report and patient care, drafted the manuscript, undertook the literature review, and revised the article critically for important intellectual content.

Rawan Obiedat contributed to patient care and revised the article critically for important intellectual content.

Ayat Al-Oqaily contributed to the literature review and revised the article critically for important intellectual content.

Shaden Abu Baker contributed to patient care, specimen grossing, microscopic images and the literature review.

Ismail Matalka contributed to the literature review and revised the article critically for important intellectual content.

All authors approved the final submitted manuscript.

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Patient consent

Written informed consent was obtained from the patient for publication of the case report and accompanying images. Institutional IRB approval number 53/163/2023.

Provenance and peer review

This article was not commissioned and was peer reviewed.

Conflict of interest statement

The authors declare that they have no conflict of interest regarding the publication of this case report.

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