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Case Report | Open Access

Diagnostic Challenges and Clinical Implications of Seromucinous Ovarian Neoplasm in Anatomical Dissection: A Case Report

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ABSTRACT

Ovarian cysts are a common finding, yet their discovery in cadavers during anatomical dissection is relatively rare. Seromucinous ovarian neoplasms represent a distinct subtype of ovarian epithelial tumors, often exhibiting benign behavior. While these tumors typically present with clinical symptoms, their incidental discovery in asymptomatic individuals underscores the diagnostic challenges. The cadaver in this study belonged to a 67-year-old woman with no known medical history of ovarian pathology or related symptoms. Medical records revealed no previous surgeries or interventions related to the reproductive system. The decedent did not report pelvic pain, abnormal uterine bleeding, or palpable abdominal masses during her lifetime. Gross examination revealed an incidental ovarian mass measuring 12x10x5.5 cm, characterized by an enlarged, congested, and cystic external surface. Further examination of the cut surface revealed multiloculated and mucoid material filling the cyst cavity, estimated to be approximately 250 cc in volume. Histopathological examination using hematoxylin and eosin (H&E) stained slides confirmed the diagnosis of a seromucinous ovarian neoplasm. Microscopic analysis depicted a lamellated cyst wall with a single layer of bland mucinous and serous epithelium, accompanied by mucoid secretions. The incidental discovery of a seromucinous ovarian neoplasm in this cadaver underscores the diagnostic challenges associated with ovarian pathology, even in the absence of clinical symptoms. This case highlights the importance of thorough anatomical dissections and understanding of the histopathological features of seromucinous tumors essential for accurate diagnosis and appropriate management strategies.

KEYWORDS ovarian cyst, seromucinous ovarian neoplasm, cadaver, anatomical dissection, histopathological examination

INTRODUCTION

Seromucinous ovarian neoplasms present significant diagnostic challenges due to their heterogeneous nature and evolving classification systems (1). These tumors, often associated with endometriosis, exhibit a spectrum from benign to malignant and are characterized by papillary architecture with stratified seromucinous epithelium (2). There are several primary classifications for epithelial ovarian carcinomas (EOCs), including serous, mucinous, clear cell, endometrioid, transitional, and squamous cell carcinomas (3). Previously classified as the Müllerian or endocervical subtype of mucinous tumors, seromucinous ovarian tumors are unusual neoplasms. Fox and Langley first used the term “seromucinous tumor”

in 1976 to characterize a tumor consisting of serous-type cells and endocervical-type mucinous epithelium (4).

The 2014 World Health Organization (WHO) categorization of neoplasms of the female reproductive organs included the first description of seromucinous tumors, a subtype of ovarian epithelial tumors. Seromucinous tumors are epithelial tumors that primarily consist of mucinous epithelium of the serous and endocervical types. These tumors frequently have foci that exhibit distinct differentiation of cells, endometrioid, or squamous tissue (5). Seromucinous tumors are classified as ovarian neoplasms connected to endometriosis, which is frequently linked to it (5). The distinctive microscopic observations include a combination of several types of epithelial cells and papillary formations with branching patterns (5). Seromucinous borderline tumors make up a small percentage (5-7%) of all borderline tumors. (4). Relatively speaking, seromucinous cystadenomas are uncommon; according to prior research, they make up about 4% of all ovarian neoplasms (6). Seromucinous tumors are divided into three categories by the WHO (2014): seromucinous carcinomas, seromucinous borderline tumors, and seromucinous cystadenomas/adenofibromas (5).

CASE REPORT

We present the case of a thinly built female cadaver, incidentally discovered to have a substantial ovarian cyst during routine anatomical dissection at our institution. The cadaver of the 67-year-old woman who had no known medical history of ovarian pathology or related symptoms was obtained for educational purposes and underwent routine dissection.

Clinical presentation

The decedent had no documented history of gynecological complaints or symptoms suggestive of ovarian pathology. Medical records indicated no previous surgeries or interventions related to the reproductive system. There were no reported instances of pelvic pain, abnormal uterine bleeding, or palpable abdominal masses during the decedent's lifetime.

Pathological findings

Upon gross examination, an incidental ovarian mass measuring 12x10x5.5 cm was identified. The external surface appeared congested and cystic, with no evidence of papillary projections or areas. Further examination of the cut surface revealed multiloculated and mucoid material filling the cyst cavity, estimated to be 250 cc in volume (Figures 1, 2). The cyst walls were markedly thickened, indicative of a significant fibrotic component.

Histopathological examination

Microscopic examination of hematoxylin and eosin (H&E) stained slides confirmed the diagnosis of a seromucinous cystadenoma. The slides depicted a lamellated cyst wall with a single layer of bland mucinous and serous epithelium, accompanied by mucoid secretions. These findings were consistent with the characteristic histological features of seromucinous cystadenoma (Figures 3, 4).

Ethical consideration

We obtained written informed consent from blood relatives of the deceased for the donation of the body to the medical college, explicitly for the purposes of advancing medical education and

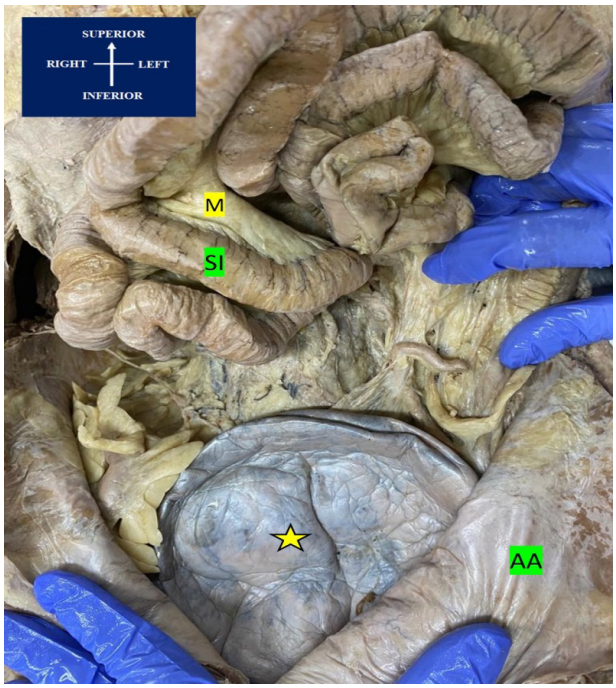

Figure 1. Photograph showing seromucinous ovarian neoplasm; *, seromucinous ovarian neoplasm; SI, Small intestine; M, mesentry, AA, anterior abdomen wall

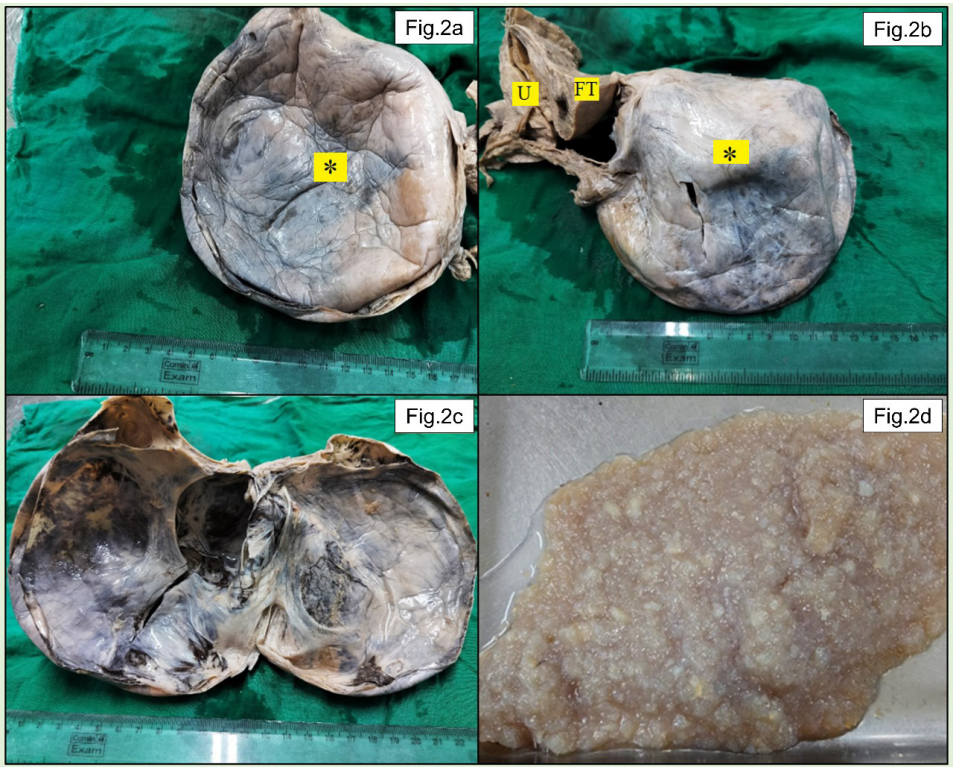

Figure 2. Photograph showing a) Isolated seromucinous cystadenoma, b) Isolated seromucinous ovarian cystadenoma with uterus (UT) and fallopian tube (FT), c) Opened seromucinous ovarian cyst, d) Mucoid material

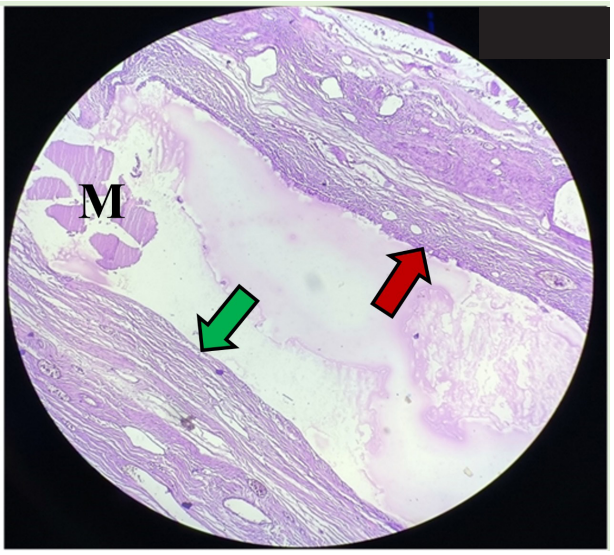

Figure 3. Photomicrograph showing Isolated seromucinous cystadenoma

research. In accordance with the guidelines set forth by the Institutional Review Board (IRB) and Research Ethics Committee, separate consent and approval for this case study were deemed unnecessary, as it arose from an anatomical dissection conducted in the context of educational and research activities. We hereby affirm that all relevant ethical standards have been rigorously adhered to and necessary approvals have been secured for the publication of this case report.

DISCUSSION

The incidental discovery of a huge congested ovarian seromucinous cystadenoma in a thinly built female cadaver, first observed during routine dissection in the department of anatomy, highlights the importance of thorough anatomical examinations in uncovering unsuspected pathologies. This case presents intriguing pathological findings that warrant further investigation and clinical correlation. The gross examination of the ovarian lesion revealed its substantial size, measuring 12x10x5.5 cm, with an enlarged, congested, and cystic external surface. The cut surface displayed multiloculation and mucoid material, indicative of a significant cystic component. Importantly, the absence of papillary projections or areas suggests a benign nature of the lesion, ruling out malignant features on gross examination.

Microscopically, the histological analysis confirmed the diagnosis of a seromucinous cystadenoma. The H&E-stained microscopic slides revealed a lamellated cyst wall with a single layer of bland mucinous and serous epithelium, accompanied by mucoid secretions. These findings

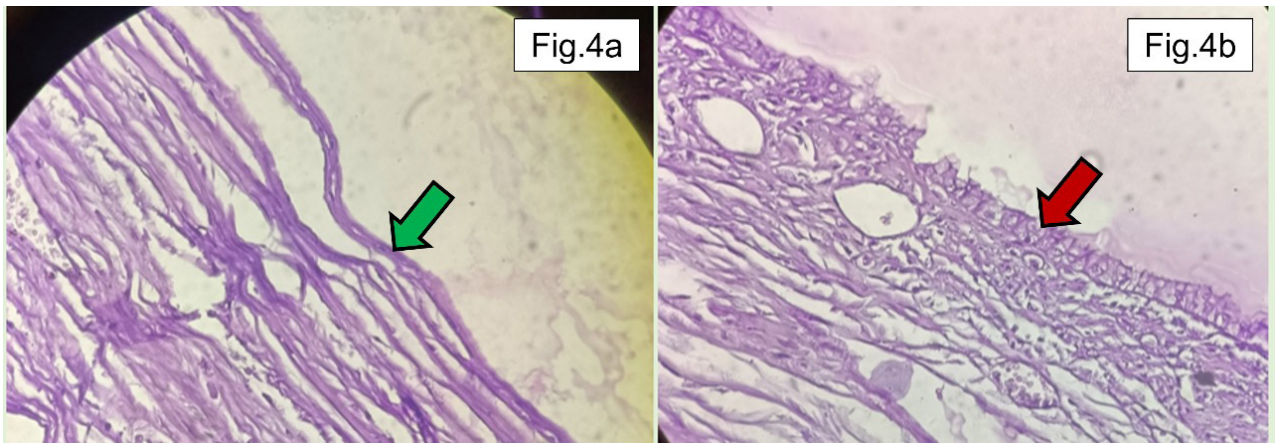

Figure 4. Photomicrograph showing Isolated seromucinous cystadenoma

align with the characteristic histological features of seromucinous tumors, which typically exhibit a mixed pattern of mucinous and serous differentiation. Seromucinous ovarian neoplasms represent a distinct subtype of ovarian epithelial tumors, characterized by their dual mucinous and serous differentiation. While most seromucinous tumors are benign, exhibiting indolent behavior, rare cases of malignancy have been reported (4, 7). Therefore, accurate pathological diagnosis and clinical correlation are essential for appropriate management and prognosis. Epithelial tumors originating in the ovary manifest in three forms, i.e., benign, borderline, and malignant (8). Typically occurring in adults, particularly those in the later reproductive age group, seromucinous cysts are believed to stem from endometriosis (9).

Ovarian cysts are a common occurrence in women across their lifespan, often resolving on their own, with documented sizes reaching up to 148.6 kg as reported by Spolin in 1922 (9). Giant ovarian cysts are ovarian tumors characterized by diameters exceeding 10.0 cm (10) A novel classification of ovarian neoplasms known as seromucinous tumors was added to the WHO Classification of Tumors of the Female Reproductive Organs in 2014 (11). A significant improvement in the categorization of epithelial ovarian tumors is the identification of this particular category. As far as we know, the term "seromucinous tumor" was first used by Fox and Langley in 1976 to characterize a tumor consisting of serous-type cells and mucinous epithelium of the endocervical type (4). Subsequently, in 1988, Rutgers and Scully separated borderline tumors that seemed identical into two groups. Pure endocervical-type epithelium made up one, while a combination of endocervical-type mucinous, serous, and endometrioid cells in various cells with an abundance of eosinophilic cytoplasm made up the other (12, 13).

Benign and borderline seromucinous tumors are still considered separate entities in the 2020 WHO classification. Previous studies have indicated that seromucinous borderline tumors typically occur in young females aged between 33–44 and have a mean size of 8–10 cm (14–16). Consequently, because this situation is similarly unilateral, it is consistent with other research. The pathological results demonstrate that seromucinous tumors are usually thick-walled and cystic. Sporobolus, oedematous, and occasionally sclerotic stroma are common microscopic characteristics of seromucinous borderline tumors, characterized by papillary structures (17, 18). Prior research mostly identified ovarian seromucinous cystadenoma from a pathologic perspective in living subjects; however, this particular instance was discovered in a cadaver.

The incidental nature of the present case finding underscores the importance of comprehensive anatomical examinations in identifying clinically significant lesions, even in asymptomatic individuals. In the context of medical education, the inclusion of such cases in anatomical teaching can enhance students' understanding of pathological conditions and their anatomical manifestations. Furthermore, from a research perspective, the documentation of incidental findings contributes to our understanding of disease prevalence and pathological variability within the population. Such data are valuable for epidemiological studies and may inform clinical practice guidelines regarding

the management of incidental ovarian lesions. This case underscores the diagnostic challenges and clinical implications associated with anatomical pathology, emphasizing the importance of comprehensive postmortem examinations in uncovering clinically significant lesions. Additionally, continued documentation and analysis of incidental findings contribute to our understanding of disease prevalence and pathological variability within the population.

CONCLUSION

In conclusion, this case emphasizes the diagnostic complexities surrounding the incidental discovery of seromucinous cystadenoma during anatomical dissections of cadavers. Despite the absence of clinical symptoms in the decedent, the identification of a substantial ovarian cyst highlights the need for meticulous pathological examinations. Understanding the histopathological features of such tumors is crucial for accurate diagnosis and management, particularly in asymptomatic individuals. This underscores the importance of comprehensive anatomical dissections in uncovering unsuspected pathologies and contributes to our knowledge of ovarian pathology in postmortem settings. The diagnostic challenges encountered in the present case highlight the need for further research to explore optimal management policies for seromucinous ovarian neoplasms that are discovered incidentally.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

ADDITIONAL INFORMATION

Data access

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Authors contribution

S.V.: conceptualisation, methodology, software, validation, formal analysis, investigation, resources, data curation, writing - original draft, writing - review & editing, visualisation, supervision, project administration

J.K.: conceptualisation, methodology, software, validation, formal analysis, investigation, resources, data curation, writing - original draft, writing - review & editing, visualisation

S.R.: methodology, writing - original draft, writing-review & editing, supervision, project administration

S.S.: methodology, writing - original draft, writing - review & editing

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