

Case Report

A Pure Ovarian insular Carcinoid Tumor: A Case Report

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Abstract

Introduction: Carcinoid tumors are rare tumors that are defined as a slow-growing neuroendocrine tumor. They are very rare in ovaries. They can be primarily of ovarian origin or may be found as metastatic lesions in ovaries.

Presentation of Case: A 67-year-old postmenopausal woman presented with vaginal bleeding. Her transvaginal ultrasonography revealed a smooth-contoured solid mass of 8.5x6 cm in right adnexal region. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed. Postoperative histopathological examination revealed pure ovarian insular carcinoid tumor. No chemotherapy or radiotherapy was applied. No residual or recurrent pathology was observed during follow-ups for 3 years following the operation.

Conclusion: Carcinoid tumors may rarely be as pure tumors. The histopathological diagnosis is challenging. Surgical therapy is the only option, and chemotherapy and radiotherapy have no role in management of these tumors.

Keywords: Ovary; primary carcinoid tumor; pure insular

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Consent: We confirm that the patient has given their informed consent for the case report to be published.

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Introduction

Carcinoid tumors are rare tumors of *neuroendocrine origin*, which may be localized in all organs. They are characterized by production of various polypeptides and biogenic amino acids [1]. Although they mostly originate from gastrointestinal system (80%), they also rarely arise from bile ducts, bronchi, ovaries and presacral area [2,3]. They are also called neuroendocrine tumors.

Primary ovarian carcinoid tumors are rare ovarian neoplasm. They constitute 0.1% of all ovarian neoplasias and 0.3% of all carcinoid tumors [4]. They can be usually seen with a dermoid cyst, mucinous cystadenoma, Sertoli-Leydig cell tumor, or Brenner tumor. Pure forms are extensively rare. We considered our case worth reporting since it is a very rare case owing to the absence of any other accompanying tumor and the challenges that we went through during the diagnostic steps. We herein summarized histopathological and clinical characteristics of our case.

Case Presentation

A 67-year-old woman, having gravidity 4, parity 3, who was in menopause for 6 years, presented to our gynecology clinic with vaginal bleeding. She had no characteristic symptoms suggestive of carcinoid syndrome, such as flushing or diarrhea. Her past medical history was not remarkable except for morbid obesity (BMI 41) and hypertension. Her transvaginal ultrasonography revealed a smooth-contoured solid mass with a size of 8.5x6 cm in right adnexal region. An endometrial and cervical diagnostic curettage were performed. The endometrial pathology report

returned with a diagnosis of endometrial hyperplasia without simple atypia. Serum tumor markers (CA-125, CA-19.9) were in normal limits. As the patient had postmenopausal bleeding and adnexal mass, an operation was scheduled. During the operation it was noted that uterus was of normal size. However, a mobile, solid, yellow-light brown color tumor free from surrounding tissues was observed in the right adnexal region. No abdominal free fluid was present. The right adnexal mass was removed and sent for frozen examination. The frozen report returned with a malignant diagnosis, prompting us to complete the operation to total abdominal hysterectomy, left salphingo-oophorectomy, paraaortic lymph node dissection, omentectomy, and appendectomy. Histopathological examination of the mass revealed acinary and cribriform structures formed by cells with a large, pink cytoplasm and round-uniform nuclei. Luminal pink-amorphous structures were also noted in some areas. No necrosis was observed, and also no mitosis was detected under 10 magnification field (**Figure 1**).

Immunohistochemical examination demonstrated tumor cells that were synaptophysin (+), chromogranin (+), pan-cytokeratin (+) and cytokeratin 20 focal-weak positive. Inhibin, vimentin, CD56, cytokeratin 7, and CD99 were found negative. Ki-67 proliferation index was below 1%. Under the light of these data the case was considered to be a pure ovarian insular carcinoid tumor. Following the operation the surgical stage of the patient was determined as the stage 1 according to International Federation of Obstetricians and Gynaecologists (FIGO) Staging System for Ovarian Cancer [5].

The patient attended regular follow-ups for 3 years after the surgery. No chemotherapy or radiotherapy was applied. No recurrent pathology

was observed at follow-ups.

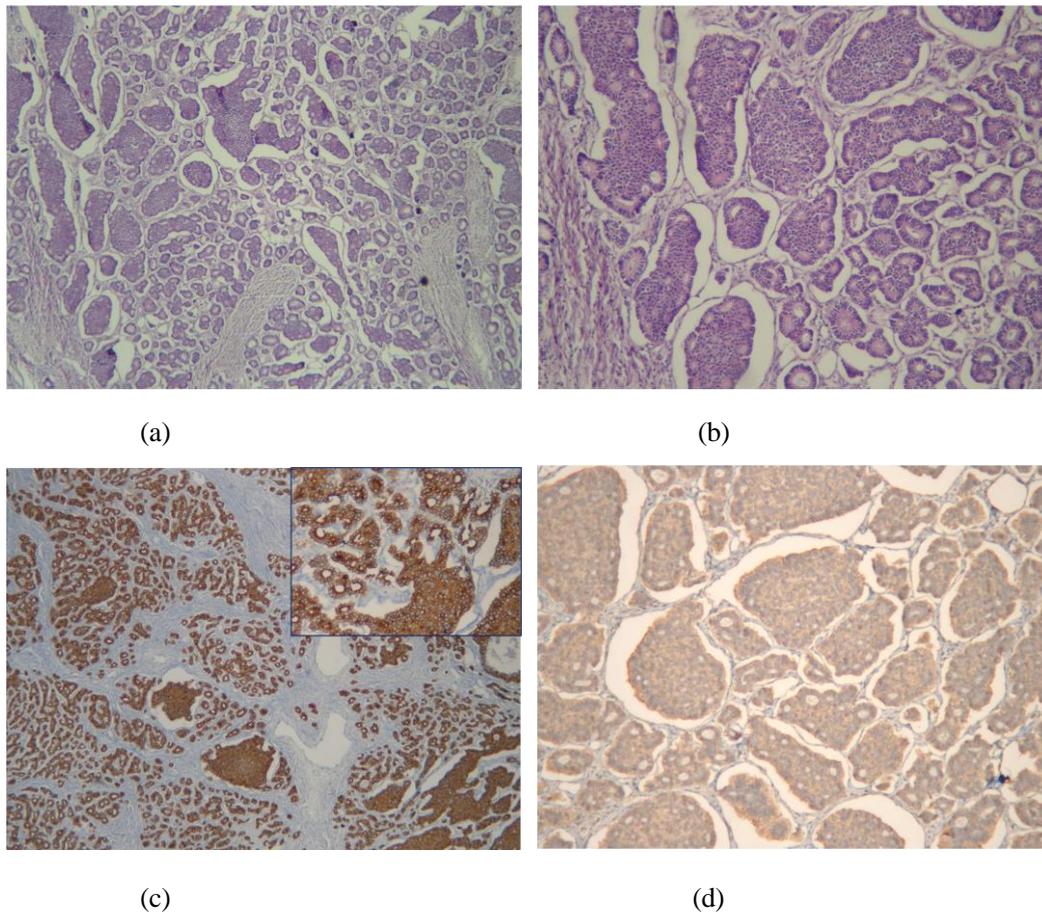


Figure 1 (a) The microphotographs show a pure ovarian insular carcinoid tumor. They show monotonous tumor cells forming islets and layers (H&Ex10); (b)Under greater magnification, monotonous, narrow cytoplasm, and salt-pepper type chromatin of the tumor cells are noted (H&Ex40); (c)In immunohistochemical examination the tumor cells were diffusely positive for pan-cytokeratin (Pan-cytokeratin x10); (d)In immunohistochemical examination the tumor cells were diffusely positive for cytoplasmic synaptophysin (Synaptophysin x20).

Discussion

Primary ovarian carcinoid tumor is usually one-sided and seen in peri or postmenopausal women [6]. They develop from well-differentiated neuroendocrine cells. They have different histological subtypes as insular, trabecular, stromal and mucinous [6]. The primary trabecular form is the least common type. It usually grows slowly, does not produce a carcinoid syndrome, does not metastasize, and has a favorable prognosis [7]. The primary mucinous carcinoid tumor is usually unilateral and has a more aggressive course compared to other subtypes [2]. The primary stromal

carcinoid is the rarest form. The primary insular form, on the other hand, is the commonest type, which is observed with ovarian teratomas in far less than 1% of cases and constitutes slightly less than 1% of all carcinoid tumors [8,9]. Patients with primary ovarian carcinoid tumors may present with symptoms of carcinoid syndrome including skin changes (redness in face and neck, telangiectasia), diarrhea, sensation of warmth, abdominal pain, cardiovascular pathologies (pulmonary stenosis, tricuspid insufficiency, and tricuspid stenosis), and pulmonary abnormalities (asthmatic attacks) [10,11]. Carcinoid syndrome is observed approximately one third of ovarian carcinoid cases [12]. This syndrome has been

reported at a rate of 43% in insular type, and 25% of these cases were noted to originate from mature cystic teratomas [7,12]. Although our patient had a tumor of the insular type, she had no symptoms compatible with carcinoid syndrome.

Ovarian carcinoid tumors can be usually seen with dermoid cyst, mucinous cystadenoma, Sertoli-Leydig cell tumor, or Brenner tumor. Pure forms are rare, grow slowly, and have a low malignancy potential. An immunohistochemical staining positive for argentaffin, argyrophil, and chromogranin A as well as the presence of cytoplasmic neurosecretory granules supports the diagnosis of ovarian carcinoid tumors. Despite these unique microscopic properties, they may be confused with various distinct ovarian tumors including granulosa cell tumor, Sertoli-Leydig cell tumor, Brenner tumor, and metastatic carcinoid ovarian tumor [13]. 5-HIAA, the main serotonin metabolite, is increased in urine. 5-HIAA is eliminated from urine and serum serotonin level markedly decreases with removal of tumor. It is important that the course of the disease is monitored with serum serotonin and urinary 5-HIAA levels [14].

The malignancy potential of ovarian primary insular carcinoid tumors should not be overlooked, even though they grow very slowly. They are usually diagnosed at FIGO stage I [15]. Literature reports have given a survival rate of 100% in the primary form limited to one ovary whereas it drops to 35% at advanced stage. In contrast, metastatic forms have a more aggressive course [2]. Bilateral salphingo-oophorectomy and total abdominal hysterectomy are the treatments of choice at pre- and postmenopausal state, while unilateral salphingo-oophorectomy usually suffices for younger patients [16].

It is crucial to distinguish primary versus secondary ovarian carcinoid tumors. Carcinoid tumors originating from gastrointestinal system particularly metastasize to ovaries and they are generally bilateral. In contrast, primary ovarian carcinoid tumors are unilateral.

Conclusion

Ovarian pure carcinoid tumors are rare. Differential diagnosis may pose difficulty for the pathologist. Such patients are usually diagnosed at FIGO stage I. They have a low malignancy potential. Unlike many ovarian tumors, surgery is usually sufficient for the treatment of ovarian carcinoid tumors and preoperative and postoperative chemotherapy is not needed.

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