

Case Report

Ependymoma in ovarian monodermal teratoma: A case study

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Abstract

Germ cell tumors comprise about 20% of all ovarian tumors and most of which are mature cystic teratomas. Monodermal teratomas are germ cell tumors derived from a single germ layer. A 33-year-old-woman revealed to the gynecology outpatient clinic with pelvic pain which is persisting for one month. The physical examination and ultrasonographic evaluation revealed a pelvic mass. Thus, laparotomy was performed. As a result of the frozen section analysis, the mass in the left ovary was diagnosed as malignant. The patient underwent left salpingo-oophorectomy and subsequent right ovarian wedge biopsy, appendectomy, total omentectomy and pelvic lymph node dissection. Dissection revealed a biloculated and partially cystic appearance. Microscopic examination indicated mature brain tissue in addition to neural tissues with perivascular pseudorosettes. According to the immunohistochemical and microscopic findings, the case was reported as ependymoma developed in a monodermal teratoma with neuroectodermal differentiation. Although mature cystic teratomas are the most common ovarian tumors, malignant transformation is a rare complication occurring in approximately 2% of cases. The most common type of malignant transformation is to squamous cell carcinoma. Because of ependymoma development in ovarian monodermal teratoma is extremely rare in the literature, it should be considered in clinical and pathological examination.

Key Words:

Mature cystic teratoma, monodermal teratoma, ovary, ependymoma

Introduction

Monodermal teratomas are germ cell tumors derived from a single germ layer. Rarely, the tumor components may undergo malignant transformation. The tumor may either be solid or cystic [1]. In monodermal cystic teratoma, the cyst wall may be composed of glial tissue or ependymal tissue [2,3]. This study aims to report an ependymoma developed in a monodermal teratoma with neuroectodermal differentiation.

Article History:

Received: 12/04/2015

Accepted: 18/06/2015

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Case Presentation

A 33-year-old-woman revealed to the gynecology outpatient clinic with pelvic pain which is persisting for one month. The physical examination and ultrasound scan revealed a pelvic mass. Thus, laparotomy was performed. As a result of the frozen section analysis, the mass in the left ovary was diagnosed as malignant. The patient underwent left salpingo-oophorectomy and subsequent right ovarian wedge biopsy, appendectomy, total omentectomy and pelvic lymph node dissection. The pathology laboratory received the left ovary in frozen form with a size of 15x10x5 cm. Dissection revealed a biloculated and partially cystic appearance (Figure 1). The cystic zone was 8x4 cm, and one zone presented papillary structures. Microscopic examination indicated mature brain tissue in addition to neural tissues with perivascular pseudorosettes (Figures 2, 3). Immunohistochemical examina-

tion showed GFAP (+), PAN-CK focal (+), CA125 (-), TTF1 (-), EMA (-), CD10 (-), alpha fetoprotein (-), calretinin(-), CD30 (-), inhibin (-), NSE (-) and CD117(-) (Figure 4). Accompanied by the above mentioned findings, the case was reported as ependymoma in monodermal teratoma with neuroectodermal differentiation.

Figure 1.

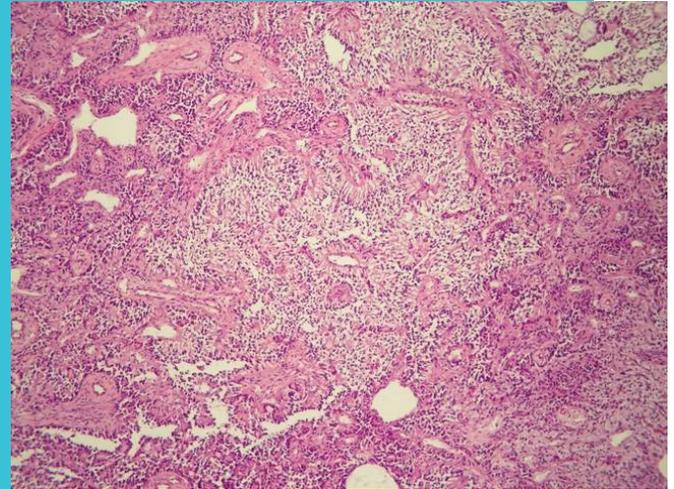


Macroscopic picture of Ependymoma in Monodermal Teratoma

Discussion

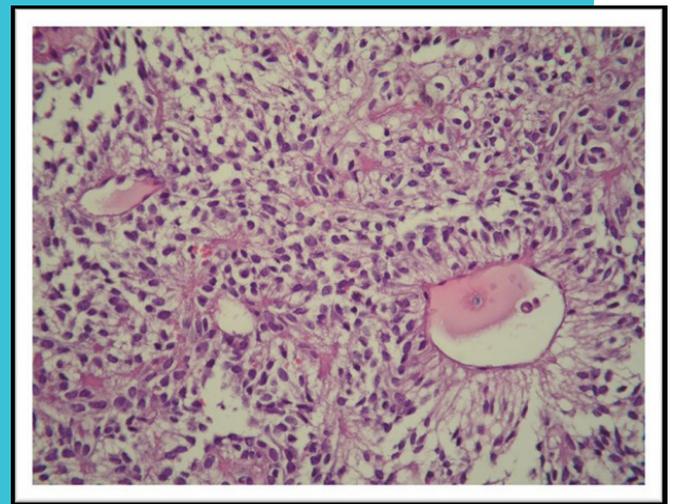
Teratomas that are derived from primordial germ cells are divided into three main groups: 1) immature teratomas, 2) mature teratomas, 3) monodermal and highly specialized teratomas [4]. Mature cystic teratomas account 99% of teratomas [4]. These tumors are derived from all three germ layers and composed of well-differentiated tissues. However, monodermal teratomas, as the name suggests, are composed of tissues that are derived from single germ layer [4-6]. Neuroectodermal, vascular, sebaceous and mucinous differentiation may be observed [3,4,7,8]. Like the mature cystic teratoma, monodermal teratoma may also undergo malignant transformation [1]. There are three types of malignant transformation: differentiated (ependymoma); primitive (ependymoblastoma, neuroblastoma, medulloepithelioma, medulloblastoma); and anaplastic (glioblastoma) [4].

Figure 2.



Neural tissue in Monodermal Teratoma (Hx E, 40)

Figure 3.



Perivascular Rosette Formation in Monodermal teratoma (Hx E, 100)

Ependymoma usually originated ependymal cells located in the spinal canal or in the wall of the ventricles and rarely originated from ovarian teratoma. It behaves as a generally softened mass with well-demarcated borders. But our ovarian tumor was partially cystic, and the cyst wall was composed of mature glial tissue in some parts, while of ependymal tissue in other parts. Although a lot of samples were taken from the lesion, examinations revealed that the tissues were derived only from the ectoderm germ layer. Zones that presented malignant transformation comprised of differentiated ependymoma. The papillary zones observed in such cases may be confused with serous tumors and the gland-like structures with endometrioid tumors (4). Immunohistochemistry is of help in such a case. Our case indicated GFAP (+), CA 125 (-), EMA (-) and pan CK focal (+). Malignant transformation that develops on the ovarian mature teratomas present non-specific clinical findings like abdominal or pelvic pain, abdominal distention and palpable masses. The life cycle depends on the stage of the tumor and its differentiation. Incomplete tumor resection and anaplastic histopathological features are associated with poor outcome (4). Our case was considered stage IA and WHO Grade II differentiation. The patient is still alive and there is no sign of recurrence during her three-years follow-up. The purpose of this article is to report a case of ependymoma arising on a background of monodermal ovarian teratoma with neuroectodermal differentiation in a young woman.

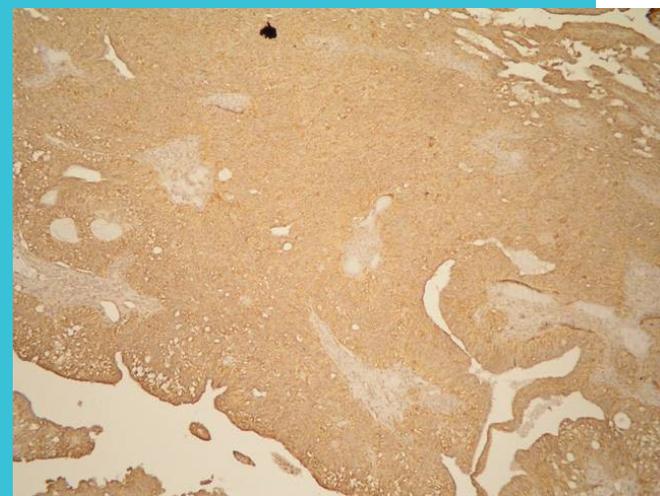
Acknowledgement

None

Conflict of Interest Statement

The authors declare no conflict of interest

Figure 4.



Immunohistochemical GFAP (+) in Ependymoma (Dako, X40)

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