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A rare case of primary ovarian mesonephric adenocarcinoma and a review of the literature

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A rare case of primary ovarian mesonephric adenocarcinoma and a review of the literature

OBJECTIVE: *Are reported in the cervix in the female genital tract, has been reported in very few studies in the literature. In this report, we aimed to present a case with mesonephric carcinoma, which was detected in the ovary and is very rarely seen.*
CASE REPORT: *In a case since the frozen section results of the left adnexal mass were reported as malignant.*
CONCLUSION: *Ovarian mesonephric carcinoma is very rare and exhibits very different morphological patterns. Therefore, immunohistochemical and morphological findings should be evaluated together. If the pathological picture does not fit the common carcinomas of ovarian origin and this entity must be brought to mind, because, if these tumors with different molecular developmental pathways are diagnosed correctly, treatment schemes will change and targeted therapies will be developed too.*

KEY WORDS: Mesonephric carcinoma, Mesonephric like carcinoma, Ovarian carcinoma

Introduction

Although the mesonephric (Wolffian) ducts are the origin of the development of the male genital organs , these ducts regress during embryogenesis in women. However, mesonephric (Wolffian) ductus residuals can also be found on the side walls of the cervix and uterus margins in adult women.
Mesonephric ducts or mesonephric hyperplasia can be detected incidentally on the lateral walls of the cervix (3 and 9 o'clock positions) and uterine materials. These ductus residuals are known to be the source of some hyperplastic and neoplastic lesions [1,2].
Mesonephric carcinoma may present pathologically with mixed glandular ducts, solid or cord-like structures. Because of these different patterns, it can sometimes be very difficult to morphologically distinguish this tumor from other carcinomas of uterine or ovarian origin. It has been reported that it is confused with more common carcinomas such as endometrioid and serous carcinoma due to some histomorphological features [1].
When mesonephric carcinomas are examined carefully, mesonephric residues in glandular morphology, which usually contain mesinophilic colloidal material in their lumens, can be observed around the tumor. In addition, it has been recently reported that immunohistochemical markers such as GATA3, TTF1 are useful for the diagnosis of mesonephric carcinomas [3,4].
Mesonephric-like carcinoma in the uterine corpus and ovaries has a similar morphology to the mesonephric carcinoma seen in the cervix. While mesonephric residues can be easily seen around the tumor in the cervix, this nomenclature is preferred due to the absence of residual mesonephric ducts in the mesonephric-like carcinoma developing in the uterine corpus and ovaries. Seeing mesonephric residues around the tumor is supportive for the origin. It has been reported that if mesonephric remnants are not seen around the tumor and if morpholo-

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gy and immunohistochemical findings support it, then it would be more appropriate to use the nomenclature "mesonephric-like carcinoma" [4].

The presence of KRAS, NRAS mutation has been reported in mesonephric and mesonephric-like carcinoma and this has been associated with [4,5].

Mesonephric carcinoma, which is rarely seen and generally reported in the cervix in the female genital tract, has been reported to be located in the ovarian and uterine corpus in a few cases in the literature [3-5].

In this study, we aimed to present the histomorphological and immunohistochemical results of our case diagnosed with mesonephric carcinoma in the ovary, which is very rare.

Case Reports

A mass of approximately 14-15 cm was detected in the left adnexal lodge in the ultrasound of a 58-year-old female patient who was admitted to Bagcilar Research and Education Hospital due to abdominal pain. On the preoperative blood tests; CA125 was 107 U/ml, CA19-9 was 312 U/ml while all other routine blood appearances were within normal limits.

In the intraoperative consultation examination of the left ovary + tuba uterina there was a 15x13x4 ovarian mass with a 7.5 cm long, 0.8 cm diameter smooth-looking tuba uterina on it. There was a tissue defect area of 2 cm in size due to surgical manipulation on the ovarian mass. In the ovarian sections, solid masses with a diameter of 6 cm, the smallest 1 cm, containing both cystic and solid areas, covering the entire section surface, were observed. Frozen section result was reported as "malignant, but tumor typing will be done by examining paraffin sections". Complementary total abdominal hysterectomy, right salpingo-oophorectomy, right-left pelvic and paraaortic lymph node dissection, omentectomy and abdominal fluid sampling were performed on the case.

In histopathological examination of the paraffin sections; the ovarian surface was smooth, except for surgical manipulation areas. In sections; tubular tumor with mild pleomorphic nuclei was observed in a mild desmoplastic stroma, which infiltrates partly tubular, partly ductal, and in some areas in a sieve-like pattern, and forms papilla-like structures towards the cyst lumen in some areas (Fig. 1). Primary high-grade serous carcinoma and high-grade endometrioid carcinoma were considered in the differential diagnosis with these histopathological findings. In the immunohistochemical analysis, while the internal control was positive which was done by estrogen receptor (ER) and progesterone receptor (PR), and the external control was positive which was done by WT 1, but no staining was observed in the tumor (Fig. 2). In the analysis performed to exclude a possible carcinoma metastasis in the case due to ER and PR negativity; focal positive staining with cytokeratin 7 (CK7), positive staining on the apical-luminal surfaces of tubular structures with CD 10, nuclear positive staining in the focal area of the tumor with TTF-1 and GATA 3 were observed. There was focal weak positivity in the tumor with P16 and wild type positivity with P53 (Fig. 3).

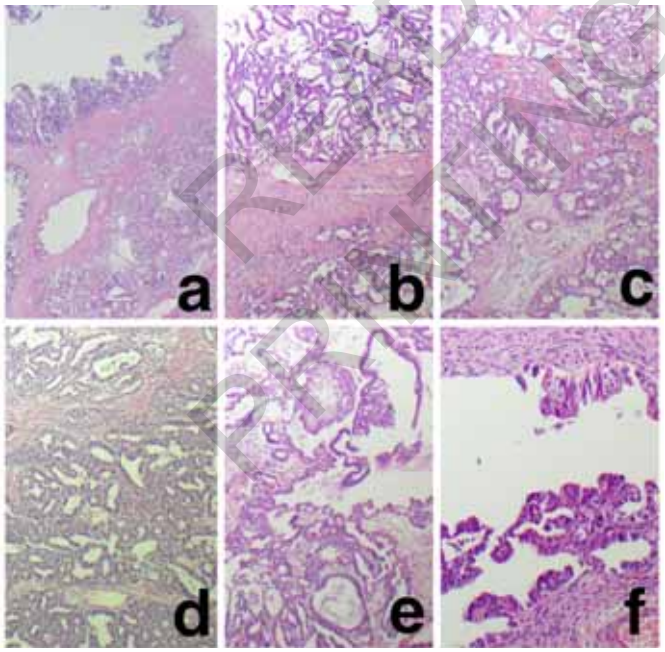

Fig. 1: Tumor infiltration forming tubular (a, b, c), ductal (b, c, d), sieve-like (e) pattern in a slightly desmoplastic stroma, papilla-like structures (f) in some areas towards the cyst lumen (hematoxylin&eosin staining × 40-200).

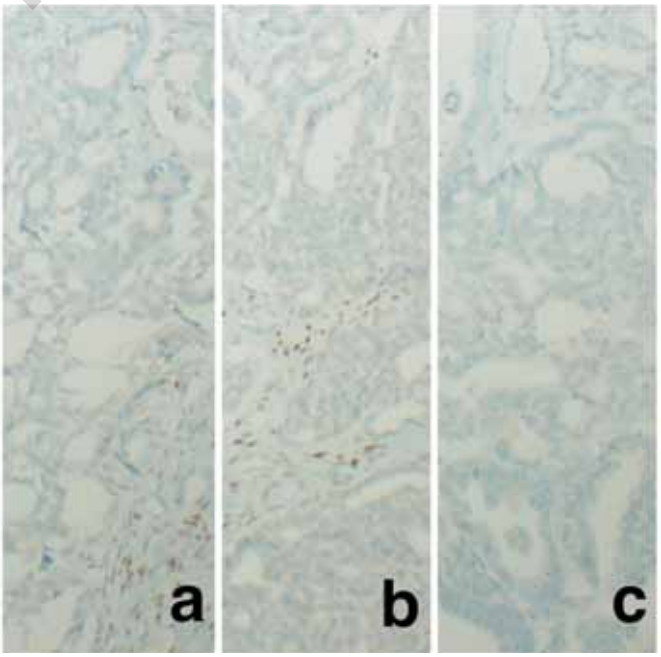

Fig. 2: While the internal control was positive which was done by ER (a) and PR (b), and the external control was positive which was done by WT 1 (c), but no staining was observed in the tumor (immunohistochemistry staining × 100).

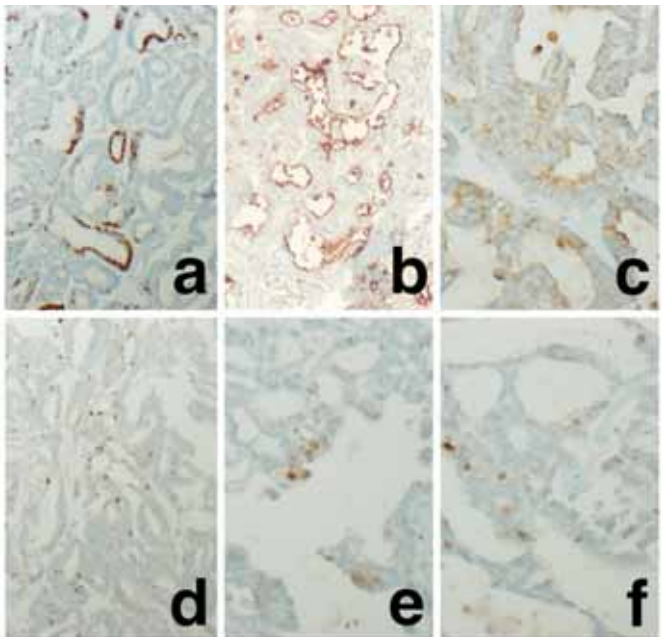

Fig. 3: Nuclear positive staining with TTF-1 (a), apical luminal staining with CD 10 (b), patchy staining with P 16 (c), wild type staining with P 53 (d), focal nuclear positive staining with GATA 3 (e and f) in tumor cells (immunohistochemistry staining × 100-400).

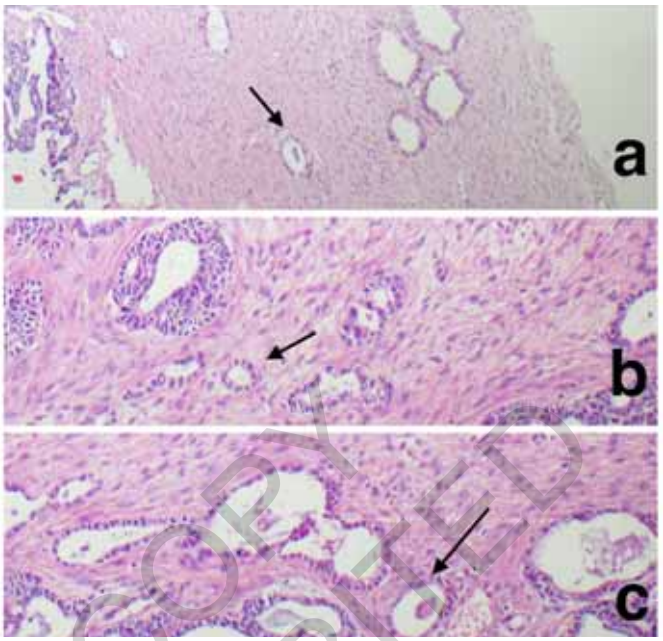

Fig. 4: Mesonephric duct remnants containing pink colloid-like material in the lumen of some in areas surrounding the tumor (hematoxylin & eosin staining × 40-200).

We consulted this case which can not be compared to common tumors based on these findings and our experiences to a mentor who has been experienced in gynecopathology for many years and works in another center; and due to the presence of mesonephric duct remnants containing pink colloidal material in the lumen (Fig 4), the histomorphological ductal structure of the tumor, immunohistochemically ER/PR negativity, TTF-1, GATA3 and apical luminal CD10 positivity, the patient was considered to be "mesonephric carcinoma" by our mentor.

No metastasis was detected in the lymph node dissection materials (67 in total) of the patient. No neoplastic lesions were detected in the omentum, hysterectomy, and right ovary. In the postoperative PET CT, no other tumor focus was detected in the case.

Discussion

There are a wide variety of mesonephric neoplasms in the female genital system; these include ovarian adenomas and cystadenofibromas, female adnexal tumors of Wolffian origin (FATWO's), and mesonephric carcinomas. FATWO's occur almost exclusively in the proximal region of the Wolffian system, predominantly in the broad ligament [6]. A few cases have been reported in the distal and paravaginal region [7]. Conversely, in mesonephric carcinomas, although 50-60 cases have been reported in the cervix or vagina; Very few cases of ovarian and uterine corpus have been reported [8-14].

Mesonephric tumors are rare neoplasms of the female genital tract that develop from embryonic remnants of the Wolffian system. There are two different parts of the Wolffian system in women's bodies: upper (proximal) and lower (distal). In the proximal region, there are remnants of the ovarian hilum, mesovarium, and mesonephric tubule in the broad ligament, also called rete ovarii. In the distal region; there are Gartner's ducts are known as scattered remnants of mesonephric ducts located deep in the lateral walls of the corpus uteri, cervix and upper vagina [6]. We think that the carcinoma in our case developed predominantly from mesonephric residues of rete ovary origin. As far as is known, "Hughesdon" reported the first case of mesonephric carcinoma of ovarian origin in 1982. A In addition, the case reported by Rutgers and Scully in the article 'rete ovarii origin cystadenoma and tumors' in 1988 can be considered as mesonephric carcinoma [6]. The main problem in the pathological diagnosis of female genital mesonephric carcinoma cases may be that the morphological changes are similar to other carcinomas. Mesonephric carcinoma cases with a wide variety of morphology are likely to be misdiagnosed. Since it is very rare in the ovary and it can especially be confused with other surface epithelial carcinomas, it should be kept in mind in the differential diagnosis. In our case, we considered mixed surface epithelial carcinoma as first possible differential diagnosis due to different morphological patterns. However, since the results of the immunohistochemical analysis do not support our opinion, we moved away from this diagnosis and tended to exclude other entities.

Immunohistochemical analysis is one of the important steps that will lead us to the correct diagnosis. We can exclude endometrioid carcinoma especially with ER-PR negativity. Again, while WT 1 negativity distracts us from the diagnosis of serous carcinoma; if it morphologically supports by the nuclear positivity of GATA 3, TTF 1, and the apical luminal positivity of CD 10, that is one of the important auxiliary immunohistochemical findings that will lead us to the diagnosis of mesonephric carcinoma.

According to the literature, ovarian mesonephric adenocarcinoma is very, very rare. However, it may be possible that mesonephric carcinoma is misdiagnosed as endometrioid serous or clear cell carcinoma due to its wide variety of morphological patterns. Because; mesonephric carcinoma was not considered in our patient too even after the morphological and immunohistochemical evaluation performed by different pathologists in our clinic, and when we consulted our mentor, who has more experience in gynecopathology and works in a different center, it was concluded that both morphological and immunohistochemical findings fully support a mesonephric carcinoma.

In the differential diagnosis of cases that cannot be fully diagnosed immunohistochemically and morphologically; the diagnosis of mesonephric carcinoma, which is not considered in the first step due to its rarity, should definitely be considered.

Due to the small number of cases reported so far, it is not possible to draw conclusions about the prognosis or treatment status of the cases [4].

In recent years, molecular KRAS mutations have been frequently reported in these cases, while PTEN, ARID1A and p53 mutations were not detected in a study conducted with 3 cases [4].

We could not analyze our case molecularly; However, immunohistochemically, wild type, that is, non-mutant, P53 positivity was present in our case.

As a result; Mesonephric carcinoma of ovarian origin is very rare and displays very different morphological patterns. For this reason, the evaluation of immunohistochemical and morphological findings together, and if the pathological picture does not fit the common carcinomas of ovarian origin, this entity should definitely be brought to mind. In this way, as these tumors with a different molecular development pathway are diagnosed correctly, treatment schemes will change and targeted therapies will be developed.

Riassunto

La rara localizzazione ovarica del carcinoma mesonefrico, che solitamente è riportato nella cervice del tratto genitale femminile, è stata riportata in pochissimi studi in letteratura. In questo rapporto, abbiamo mirato a presentare un caso con carcinoma mesonefrico, che è stato rilevato nell'ovaio ed è dunque di raro riscontro.

Caso clinico: in una paziente di 58 anni, è stata rilevata una massa nella loggia annessiale sinistra ed i risultati dell'esame istologico estemporaneo della massa annessiale sinistra sono stati indicativi di formazione maligna.

Conclusione: Il carcinoma ovarico mesonefrico è molto raro e presenta aspetti morfologici molto diversi. Pertanto, i risultati immunoistochimici e morfologici dovrebbero essere valutati insieme. Se il quadro patologico non rientra nei comuni carcinomi di origine ovarica anche l'eventualità di questa entità va ricordata, perché, dato che questi tumori hanno percorsi di sviluppo molecolare diversi se vengono diagnosticati correttamente, gli schemi di trattamento cambieranno e verranno sviluppate anche terapie mirate.

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