Prostatic tissue in a benign cystic teratoma of the ovary. Report of two cases.

Eugene Vlodavsky MD and Hedviga Kerner MD

Department of Pathology, Rambam Medical Center and Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, Haifa, Israel

Key words: ovarian teratoma, prostatic tissue, androgen

IMAJ 2000;2:783–784

Prostatic tissue in ovarian cystic teratoma is a rare finding and only a few cases have been published in the literature [1–5]. We report two additional cases of benign cystic teratoma of ovary with areas of benign prostatic tissue. Pathogenetic aspects of this unusual differentiation are discussed.

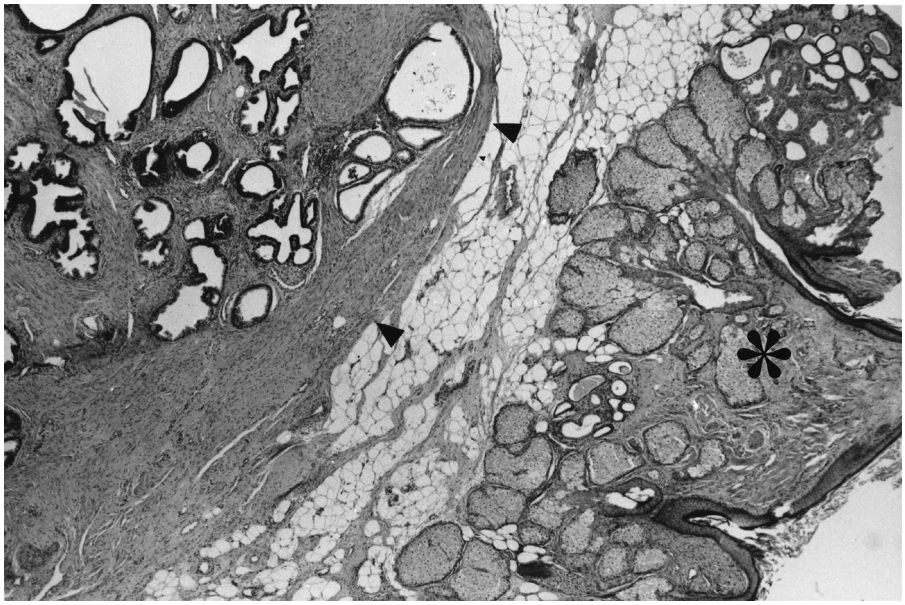
Case Descriptions

Case 1. A 46-year-old nulliparous woman presented with lower abdominal pain and a palpable mass in the area of the left ovary. A left salpingo-oophorectomy was performed. The specimen submitted was a cystic ovarian mass measuring 6x5x3 cm and containing yellow sebaceous material, hair and solid nodules attached to its wall. The fallopian tube was unremarkable.

Case 2. A 51-year-old woman (gravida 3, para 2) presented with a right ovarian mass. A right salpingo-oophorectomy yielded a cystic ovarian mass, 7x5x3 cm, that contained gritty yellow-white content mixed with hair. The wall of the cyst was focally thickened.

Microscopic examination of both cysts revealed a mature cystic teratoma. The tumor was composed of different mature tissue elements such as skin, neural tissue and respiratory epithelium. In both cases well-defined nodules of benign prostatic tissue were found in the wall [Figure].

The prostatic nodules consisted of acini and ducts lined by columnar epithelium and surrounded by basal cells in a fibromuscular stroma. In case 2, mucinous glands resembling Cowper's glands were noted. Foci of transitional epithelium and basal cell hyperplasia were seen in both cases.



Prostatic tissue (arrow) in the wall of mature cystic ovarian teratoma (asterisk). Hematoxylin and eosin. x 20.

Immunohistochemical staining for prostate-specific antigen and prostate-specific alkaline phosphotase was strongly positive in prostatic epithelium in both cases. High molecular weight cytokeratin (34βE12) highlighted the basal cells.

Comment

Only eight cases of prostatic tissue in benign cystic teratoma of the ovary have been reported [1–5]. Ovarian teratomas arise from a single ovarian germ cell via parthenogenesis following the first meiotic division [1,2]. The individual cells of these tumors have a 46XX karyotype. The lack of the Y chromosome is presumed to exclude the development of male genital structures in ovarian teratomas [2]. Several explanations for this mysterious phenomenon were presented in the literature. The finding of the prostatic tissue in close relation to urothelium in other reported cases [1–5], including our two patients, reinforces the suggestion that the prostatic tissue in ovarian teratomas derives from embryonic remnants of the endodermal buds of the urogenital sinus [4,5]. The presence of prostatic tissue in a 46XX tumor may be related to induction of endodermal cells by locally produced androgen [1,2]. Luteinized cells found adjacent to the teratoma in one reported case [2] were proposed as a source of androgen. In our patients there were no clinical signs of virilization and no luteinized cells were found.

The possibility that the prostate-forming genetic material from the paternal chromosomes may have failed to be inactivated during partheno-

genesis was also raised as an explanation for the presence of male tissue in ovarian teratoma [4]. The uniform staining for prostate-specific antigen and prostate-specific alkaline phosphotase confirms prostatic origin as opposed to the female para-uretheral Skene's glands [1]. Careful sampling and examination of ovarian cystic teratoma may likely reveal that such a mysterious finding – prostatic tissue – is not so rare.

References

1. McLachlin CM, Srigley JR. Prostatic tissue in mature cystic teratomas of the ovary. *Am J Surg Pathol* 1992;16:780–4.
2. Brumback RA, Brown BS, di Sant, Agnese PA. Unique finding of prostatic tissue in benign cystic ovarian teratoma. *Arch Pathol Lab Med* 1985;109:675–7.
3. Nogales FF, Vergara E, Medina MT. Prostate in ovarian mature cystic teratoma. *Histopathology* 1995;26:373–5.
4. Vadmal M, Hajdu SI. Prostatic tissue in benign cystic ovarian teratomas. *Hum Pathol* 1996;27:428–9.
5. Buzzi A, Crescini C, Sonzogni A, Pezzica E. Prostatic tissue in a cystic teratoma of the ovary. *Minerva Ginecol* 1994;46:49–51.

Correspondence: Dr. E. Vlodavsky, Dept. of Pathology, Rambam Medical Center, P.O. Box 9602, Haifa 31096, Israel. Tel: (972-4) 854-3256/2235; Fax: (972-4) 854-2877; email: e_vlodavsky@rambam.health.gov.il.