Annals of Diagnostic Pathology 22 (2016) 63–66

Contents lists available at ScienceDirect

Annals of Diagnostic Pathology

Tubulosquamous polyps in the vagina. Immunohistochemical comparison with ectopic prostatic tissue and Skene glands

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ARTICLE INFO

Keywords:
Tubulosquamous polyps
Ectopic prostatic tissue
Skene glands
NKX3.1
GATA3

ABSTRACT

Two tubulosquamous polyps arising in the vagina are reported. Both were diffusely positive for GATA3 in the squamous component and focally positive for NKX3.1 in the glandular component, prostate acid phosphatase was focally positive in only 1 case in the glandular component. Both cases were negative for PAX2, PAX8, SALL4, and prostate-specific antigen. In addition, we included 3 cases of cervical squamous-lined cysts most likely representing ectopic prostatic tissue in the cervix and 1 case of paraurethral Skene-type glands to compare the immunophenotype. We analyze this immunoprofile, not previously reported. We also suggest unifying the nomenclature because vaginal Brenner tumors are most likely synonymous with tubulosquamous polyp (TSP) of the vagina. Our findings add support to the postulated origin of TSPs and cervical ectopic prostatic tissue from eutopic or misplaced Skene glands, equivalent of the prostate in the female. NKX3.1 seems a better marker to study and diagnose ectopic prostatic tissue in the cervix as well as TSPs.

1. Introduction

Vaginal tubulosquamous polyp (TSP) was described by McCluggage and Young [1] in 2007. The authors reported 10 cases of a characteristic vaginal polyp, typically occurring in postmenopausal women and composed of an admixture of squamous cells and tubules within a fibrous stroma. To date, 14 additional TSP have been reported in the lower gynecologic tract [2–9].

In this report, 2 vaginal TSPs are described and studied with immunostains not previously reported in these lesions: PAX2 and PAX8 (Müllerian markers), SALL4 (germ-cell tumor marker), GATA3 (marker expressed in squamous, and urothelial carcinomas, amongst other lesions), and NKX3.1 (largely restricted to the prostate-type glands) [10]. In addition, we included 3 cases of cervical squamous-lined cysts and nests, most likely representing ectopic prostatic tissue in the cervix and 1 case of paraurethral Skene glands to compare the immunophenotype. We review the immunoprofile of these lesions and comment on the origin from Skene glands.

2. Results

2.1. TSP case 1

A 74-year-old female patient without pertinent history presented for an annual gynecologic examination. During examination, a 0.8 × 0.5 × 0.4-cm upper vaginal polypoid lesion was seen and interpreted as a vaginal cyst by the gynecologist. After removal in the office, the specimen was submitted for pathologic examination. Grossing features revealed a polypoid fragment with smooth and glistening surface. Cut section revealed a 0.5-cm cyst containing yellow and granular material. Under microscopic examination, the polyp-like specimen was lined by unremarkable squamous epithelium, including multiple squamous nests composed of cells with abundant eosinophilic or clear cytoplasm, and squamous lined-cysts with granular content and focal calcification (Fig. 1A). Rare glands/tubules lined by cuboidal epithelium were seen, one of them adjacent to squamous nests in part also lined by mucinous-type epithelium (Fig. 1B). Basaloid-type squamous epithelial nests, a central epithelial structure resembling a hair follicle, and adjacent sebaceous glands were also seen. Immunostains performed revealed that most epithelial components of TSP were strongly and diffusely positive for GATA3, except the glands/tubules that were only patchy and weakly positive (Fig. 1C). Only these glands/tubules were strongly positive for NKX3.1, whereas prostate acid phosphatase (PrAP) was focally positive in the luminal epithelium of the glandular/tubular structures (Fig. 1D). PAX2, PAX8, SALL4, and prostate-specific antigen (PSA) were negative in the entire lesion.

No funding or conflicts of interest to disclose.

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http://dx.doi.org/10.1016/j.anndiagpath.2016.04.005
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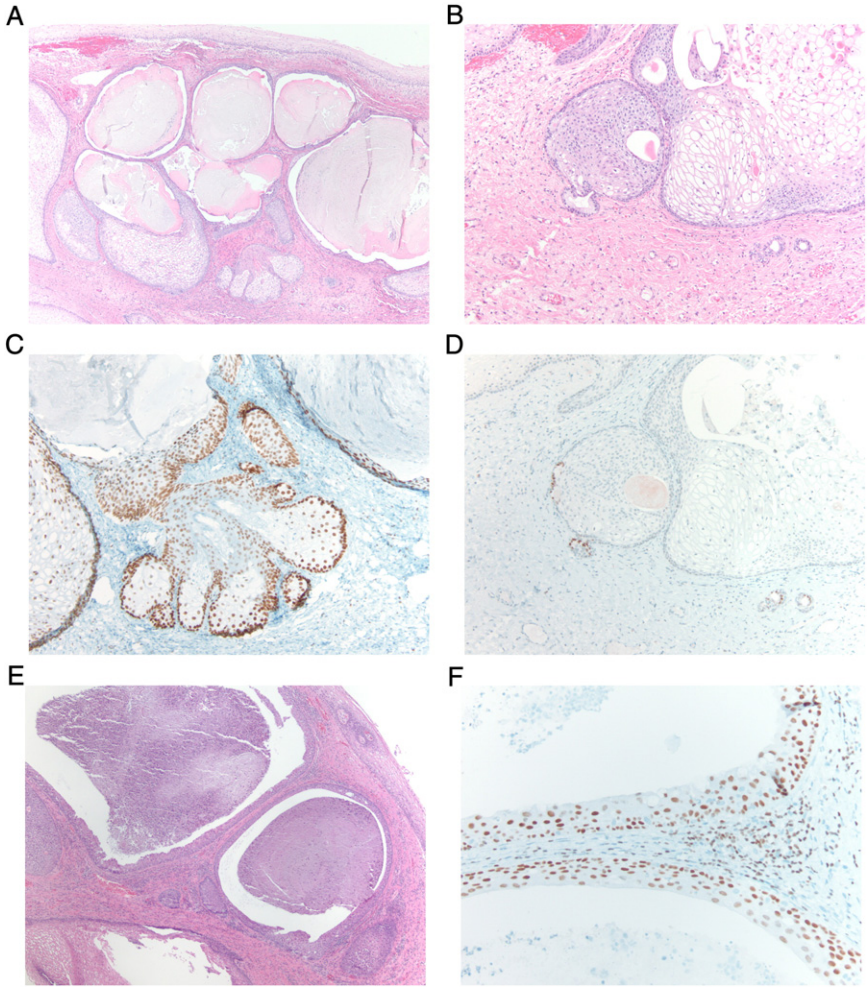

Fig. 1. (A) TSP with sebaceous glands. Hematoxylin and eosin (HE), original magnification ×40. (B) Areas of tubular glands associated with squamous nests, in part lined by mucinous epithelium (left). HE, ×100. (C) Diffuse expression for GATA3 in squamous and sebaceous component (×200). (D) NKX3.1 expression in glandular/tubular structures (×200). (E) Second case of TSP with squamous lined cysts. HE, ×40. (F) Diffuse expression for GATA3 in TSP with weaker to negative expression in superficial mucinous cells (×200).

2.2. TSP case 2

A 71-year-old female patient without pertinent history presented with postmenopausal bleeding. An ultrasound revealed thickened endometrium and a complex cervical mass measuring 2.5 cm. An endocervical loop electrosurgical excision procedure and an endometrial biopsy were performed, revealing complex atypical hyperplasia involving an endometrial polyp and benign polypoid endocervical tissue with inflammation. A month later, during intrauterine device placement to treat the hyperplasia, a vaginal polyp was detected and removed. The lesion was located in the mid anterior vaginal wall (12-o'clock position). Gross examination revealed a tan-brown fragment of tissue of 0.9 × 0.4 × 0.4 cm. The polyp was lined by squamous epithelium and predominantly composed of squamous-lined cysts and rare squamous nests with abundant eosinophilic or clear cytoplasm (Fig. 1E). Glands/tubules were not seen. Occasionally, the dilated cysts were lined by stratified epithelium with intermediate features between squamous epithelium and urothelium, and focal epithelial cells with mucinous cytoplasm were focally seen lining the uppermost epithelium (Fig. 1F). Immunostain for GATA3 was diffuse and strong throughout the squamous epithelium but not in the mucinous cells. NKX3.1 was positive in occasional basaloid cells of the squamous nests and surrounding luminal areas within the squamous epithelium. PAX2, PAX8, SALL4, PSA, PrAP, and p501s protein (prostate marker) were negative in the entire lesion.

2.3. Squamous cysts and nests within cervix

Three patients aged 44, 63, and 67 years had hysterectomy for benign reasons (fibroids, adenomyosis, and bleeding, respectively). Malignancy, including squamous dysplasia, was not identified. In these 3 patients, the cervical sections revealed squamous nests and cysts lined by squamous epithelium that were located at various depths of the cervical stroma. Higher magnification revealed occasional epithelial cells with abundant cytoplasmic mucin, resembling endocervical cells (Fig. 2A). Atypia was not identified. Immunostain results revealed expression of the squamous epithelium with GATA3, whereas the mucinous cells were negative. An opposite immunohistochemical pattern was seen with NKX3.1; nuclei of mucinous-type cells expressed the marker but squamous cells were negative (Fig. 2B). True endocervical glands in these 3 cases were negative for NKX3.1. These changes resembled ectopic prostatic tissue in the cervix.

2.4. Paraurethral Skene-type glands

A 35-year-old patient had urethral resection due to urethrovaginal fistula. Underlying the urothelium, multiple clusters of paraurethral mucinous-type glands were seen with features consistent with Skene glands, some with associated urothelial/squamous type epithelium as well as cysts and nests similar to those seen reminiscent of TSP (Fig. 2C). Immunostains performed revealed the urothelium and