Pathology – Research and Practice 208 (2012) 424–432

Contents lists available at SciVerse ScienceDirect

Pathology – Research and Practice

journal homepage: www.elsevier.com/locate/prp

Teaching case

The vaginal spindle cell epithelioma: A case report, review of the literature and discussion of potential histogenesis

Etienne Mahe[a,*], Mona Bishara[b], Dina El Demellawy[c,d], Franco DeNardi[a], Salem Alowami[a]

[a] Department of Pathology & Molecular Medicine, McMaster University, Hamilton, Ontario, Canada
[b] Department of General Pathology, Grand River Hospital, Kitchener, Ontario, Canada
[c] Department of Pathology and Laboratory Medicine, William Osler Health Care, Ontario, Canada
[d] Northern Ontario School of Medicine, Ontario, Canada

ARTICLE INFO

Article history:
Received 22 February 2012
Received in revised form 4 April 2012
Accepted 3 May 2012

Keywords:
Vagina
Spindle cell epithelioma
Mixed tumor
Benign tumor

ABSTRACT

The so-called mixed tumors occur in a variety of sites throughout the body. While most cases are encountered in the salivary glands, several cases have been described in the female genital tract. A variety of monikers have been applied to this lesion including "spindle cell epithelioma." As in other locations, the vaginal spindle cell epithelioma (VSE) consists of a proliferation of both epithelial and mesenchymal components. Based on our extensive review of the literature, we present the 53rd reported case of VSE. More significantly, we present the most up-to-date review of this lesion, including its immunohistochemical and electron microscopic features. We also review the theories pertaining to its histogenesis incorporating current embryologic data, which together suggest a Müllerian derivation.

Introduction

The so-called mixed tumors occur in a variety of sites throughout the body. While most cases are encountered in the salivary glands, several cases have been described in the female genital tract. A variety of monikers have been applied to these lesions including the name "spindle cell epithelioma." Description of the first case occurring in the vagina is attributed to Brown in the early 1950s [1]. Since then, a number of case reports and series have provided much more information about this unique lesion.

As in other locations, the vaginal spindle cell epithelioma (VSE) consists of a proliferation of both epithelial and mesenchymal components. VSEs also demonstrate several characteristic histopathological features including circumscription without encapsulation, predominance of a bland spindle cell population with interspersed epithelial elements, most frequently forming squamoid nests. As will be elaborated upon further, the presence of these benign bland elements are important in ruling out other rare malignant mesenchymal lesions. In contrast to many other mixed tumors from a variety of sites in the body, there is still debate as to the embryologic origin of this tumor.

Based on our extensive review of the literature, we present the 53rd VSE. More significantly, we present the most up-to-date review of this lesion, including its immunohistochemical and electron microscopic features. We also review its purported histogenesis, incorporating the results of current embryologic research.

Case report

A 52-year-old woman presented to her primary care physician with a vaginal mass of a few months' duration. There were no associated symptoms, no bleeding or adenopathy and the remainder of the gynecological exam was unremarkable. Nevertheless, due in part to the patient's concern about a possible malignancy, she was referred to a local gynecologist and simple excision was recommended. Resection was performed under general anesthetic and the patient recovered immediately; she was discharged without incident. Follow-up of two years failed to demonstrate recurrence or progression.

Gross pathologic examination revealed a well-circumscribed unencapsulated rubbery mass underlying an otherwise unremarkable vaginal mucosa. Cut sectioning revealed a 1.5 cm homogeneous tan-white nodule. Histologic sections revealed a well-circumscribed nodular mass, predominantly consisting of a dense but monotonous spindle cell proliferation; there were no evident sarcomatous elements, mitoses or areas of necrosis. Interspersed in this spindle cell stroma were several small rounded nests of squamoid cells, some bearing a clear cytoplasm (Fig. 1). This epithelioid component was also cytologically monotonous and there were no evident mitotic figures or necrosis. The overlying and

* Corresponding author at: c/o St. Joseph's Healthcare, 50 Charton Ave. E., Hamilton, ON L8N 4A6, Canada. Tel.: +1 905 521 2100x42037; fax: +1 905 521 6192.
E-mail address: etienne.mahe@medportal.ca (E. Mahe).

0344-0338/$ – see front matter © 2012 Elsevier GmbH. All rights reserved.
http://dx.doi.org/10.1016/j.prp.2012.05.005

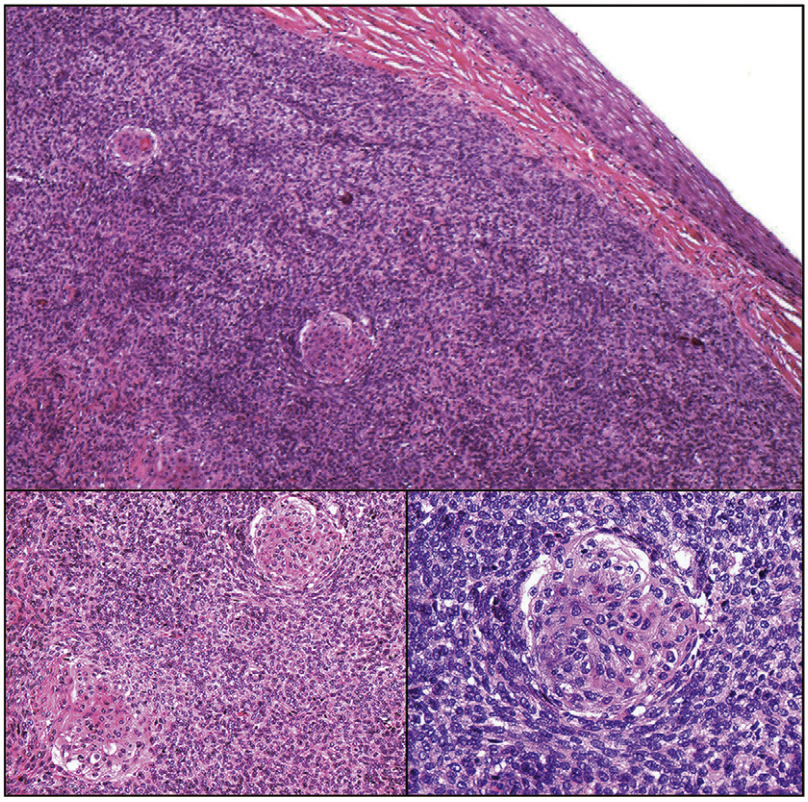

Fig. 1. VSE photomicrographs (H&E): Top: lesion underlying vaginal squamous mucosa (40×); Bottom left: squamoid component with background spindle cell component (100×); Bottom right: high-power view of squamoid island (400×).

adjacent squamous mucosa was non-dysplastic with no connection to the underlying nodule.

A panel of immunohistochemical stains was requested (Fig. 2). The spindle cell component was found to stain positively for cytokeratins AE1/AE3 and 7, Vimentin, CD10, CD34, BCL-2, ER and PR. The squamoid component stained positively for EMA, CD10 and ER (and was negative for Vimentin, CD34, BCL-2 and PR). A diagnosis of VSE was rendered accompanied by a note that no further intervention was required.

Discussion

Primary malignancies of the vagina are fairly rare; the US Cancer Incidence Surveillance, Epidemiology and End-Results (SEER) database suggests an incidence rate of vaginal malignancies of approximately 0.7 cases per 100,000 [2]. Most malignant lesions of the vagina, furthermore, are either squamous in nature or represent metastatic lesions [3–5]. Benign tumors therefore make up the great majority of primary vaginal tumors and run the gamut of epithelial and mesenchymal lesions [3–5].

A review of the literature through MEDLINE and EMBASE (also incorporating back-review through the references of each publication) highlights several individual case reports, as well as three case series of varying sizes, pertaining to VSE (see Table 1) [1,6–24]. Many cases have also been investigated for their immunohistochemical properties, including a series of thirteen cases reported by Oliva et al. (see Table 2) [6,9,11,12,16–18,20,22]. Six publications, including one series of eight cases, have included electron microscopic analyses (see Table 3) [6,11,12,17,19,22]. One study has reported a flow cytometric DNA analysis of VSE [9]; another has also performed a restricted fluorescence in situ hybridization chromosomal numerical analysis on chromosomes 12 and 17 [12].

VSEs seem to occur most frequently in adult women in their fourth or fifth decades (based on our review of the literature, we have calculated an average age of 40, with a range from 20 to 69) [1,6–17,19–24]. Two cases, described by Buntine et al., were noted in sisters diagnosed some 12 years apart with similar gross and histological features [7]. Most cases were discovered incidentally as rubbery masses, typically near the hymenal ring, averaging 2.8 cm in maximal dimension (with a range of 1–6 cm) [1,6–17,19–24]. The lesion is less frequently polypoid or pedunculated [1,7,9,12,13,16,17,21,22]. Vaginal bleeding was noted in only two cases [13,21]: both were pedunculated lesions, one with an ulcerated mucosal surface [21], but neither demonstrated involvement of the mucosa [13,21]. In virtually all cases, the clinical history and the remainder of the clinical gynecological work-up were non-contributory [1,6–17,19–24]. Two studies reported the use of ancillary imaging using ultrasound and/or MRI in the work-up of the tumor, though neither study noted any specific radiologic features [11,15]. Virtually all cases have been described as amenable to primary surgical resection [1,6–17,19–22,24] although partial "shelling-out" has been performed on occasion [6,7,24]. In only one case of VSE was the tumor deemed unresectable and in this case the primary therapy was radium brachytherapy [23]. In this exceptional case, brachytherapy proved to be effective and no clinical or pathological recurrence was evident, even after 16 years of follow-up [23]. Only three recurrent cases have been described, all accounted for by probable incomplete primary resection [6,24]. The recurrent cases have also reportedly demonstrated near identical histomorphological features relative to the original specimens [6,24]. The detection of recurrence in one case 8 years after primary excision has implied the need for close follow-up in those cases believed to be incompletely resected [24]. No cases of VSE with accompanying metastases have been reported and no deaths have been attributed directly to this lesion.