Vaginal primary malignant melanoma: report of four cases and review of the literature

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Summary

Objective: The aim of this retrospective study was to analyse the clinical characteristics, management and prognosis of four patients with vaginal primary malignant melanoma (VPMM) who were diagnosed and treated in our departments together with a review of the current literature. *Materials and Methods:* Between January 1997 and September 2009, four cases with histologically confirmed VPMM were evaluated retrospectively. All patients underwent wide local excision. *Results:* One patient was in Stage I (25%), two patients in Stage II (50%) and one patient in Stage IV (25%). Among them, one patient received additional radiotherapy and three patients received additional immunotherapy with interferon. *Conclusion:* The prognosis of VPMM is very poor, despite the treatment modality, because most cases are diagnosed at late stage.

Key words: Vaginal primary malignant melanoma; Treatment; Radiotherapy; Chemotherapy; Immunotherapy; Prognosis.

Introduction

Vaginal primary malignant melanoma (VPMM) is a very rare, but very aggressive tumour [1, 2]. The estimated incidence of VPMM is about 0.026/100,000 women per year [2, 3].

The aetiology of VPMM is largely unknown and does not have any known risk factors. It originates from melanocytes that are present in the vaginal mucosa [4, 5]. VPMM most commonly occurs in postmenopausal women in their sixth and seventh decades [6, 7]. The most common symptoms and signs in women with VPMM are vaginal bleeding (80%), vaginal discharge (25%), palpable vaginal mass (15%) and pain (10%) [6-9].

The aim of this retrospective study was to analyse the clinical characteristics, management and prognosis of four patients with VPMM who were diagnosed and treated in our departments, together with a review of the current literature.

Material and Methods

Between January 1997 and September 2009, four cases with histologically confirmed VPMM were diagnosed in the Department of Obstetrics and Gynaecology of the University of Patras Medical School and the 2nd Department of Gynaecology of St. Savvas Anticancer - Oncologic Hospital of Athens. These cases were evaluated retrospectively.

All patients underwent wide local excision. All staging procedures were performed by a gynaecologic oncologist.

All tissue specimens were stained with haematoxylin-eosin. The histologic diagnosis was confirmed by positive immunostaining. Tumour cells were positive for S-100 protein, Melan A and HMB-45.

Staging was determined using the surgical staging system for vaginal cancer established by the International Federation of Obstetrics and Gynaecology (FIGO). Tumour histologic classification was performed using the criteria of the World Health Organization (WHO).

Results

The median age at diagnosis of VPMM was 71.7 years (range 65-82 years). The median follow-up was 26 months (range 14-46 months).

The most common symptoms and signs were vaginal bleeding (100%), vaginal discharge (50%) and palpable vaginal mass (50%). These data are shown in Table 1.

According to the FIGO classification, we had one patient in Stage I, two patients in Stage II and one patient in Stage IV. Among them, one patient received additional radiotherapy and three patients received additional immunotherapy with interferon (Table 2).

During a mean follow-up of 26 months, one patient with Stage I and one patient with Stage IV died and two patients with Stage II are well with no evidence of relapse.

Discussion

Malignant melanoma is a tumour of the melanocytes of the skin and mucosal membranes. The histogenesis of VPMM is not known. However, it is thought to arise from melanocytes located aberrantly in the epithelium of the vagina [5]. Melanocytes can be found in the basal portion of the vaginal epidermis in 3% of healthy women [10]. Active junctional changes are thought to be the initial stages of development in malignant melanomas of the mucous membranes [11].

VPMM is a very rare disease with fewer than 250 cases reported in the English literature [1, 2]. The estimated incidence of VPMM is about 0.026/100,000 women per year [2, 3]. It accounts for 0.3-0.8% of all malignant

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Table 1. — *Clinical features*.

		Patients	Percentage (%)
Age at diagnosis	< 60	0	0%
	≥ 60	4	100%
Symptoms & signs	Vaginal bleeding	4	100%
	Vaginal discharge	2	50%
	Palpable vaginal mass	2	50%
	Pain	0	0%

Table 2. — *Histopathologic findings - treatment*.

		Patients	Percentage (%)
Stage	I	1	25%
	II	2	50%
	III	0	0%
	IV	1	25%
Surgery	Yes	4	100%
	No	0	0%
Radiotherapy	Yes	1	25%
	No	3	75%
Chemotherapy	Yes	0	0%
	No	4	100%
Immunotherapy	Yes	3	75%
	No	1	25%
Biochemotherapy	Yes	0	0%
	No	4	100%

melanomas, 2-5% of female genital tract melanomas and less than 3% of all vaginal malignancies [1, 2, 3, 12, 13]. VPMM most commonly occurs in postmenopausal women, with a mean age of 57 years [6, 7, 9, 14]. In our study all women were postmenopausal with a mean age of 71.7 years.

Although VPMM might arise anywhere, it is primarily found in the lower one third (34.1%) and mostly on the anterior wall (38%) of the vagina [2, 4, 5, 7, 9, 15]. VPMM may be single or multiple, pigmented or nonpigmented [16]. Most of them are frequently polypoid and ulcerated and, when nonpigmented, may be mistaken for epithelial tumors [16, 17]. In our study only one woman had VPMM in the lower one third of the vagina.

The most common histologic cell type of VPMM is epithelioid (55-58%); other cell types are spindled and mixed [14, 17]. The FIGO staging system for vaginal cancer, which does not incorporate tumour size and regional lymph node status, is not suitable for VPMM [6]. In our study we had one patient in Stage I (25%), two patients in Stage II (50%) and one patient in Stage IV (25%).

VPMM is a very aggressive tumour, showing a high incidence of local recurrences and metastasis [15, 18]. Most patients are diagnosed in advanced stage [4, 19], which might be due to delayed diagnosis as a result of tumour location and the rich vascular and lymphatic network of the vaginal mucosa [6, 7]. Such factors contribute to early tumour spread and development of metastases [18-20]. The prognosis of VPMM is also known to be much worse when compared with cutaneous malignant melanoma (CMM) and other vaginal malignancies [17].

An appropriate and effective treatment protocol for VPMM has not been defined yet. There are several treatment options, but none of them has proved to be a standard approach [14]. Since VPMM is very rare, treatment options are often extrapolated from the knowledge gathered from CMM [8]. Treatment of VPMM with radiation and chemotherapy has been equally disappointing and surgery remains the primary treatment of choice [8, 14].

The spectrum of surgical therapy ranges from conservative surgery (wide local excision) to radical surgery (vaginectomy, pelvic exenteration) [6, 14]. If local excision with clear margins is possible, the role of radical surgery as primary treatment for VPMM is unjustified [6]. Wide local excision followed by radiotherapy is appropriate for many patients with VPMM [14]. Nevertheless, if local excision is not possible, pelvic exenteration may be reasonable [6]. In our study all women underwent wide local excision.

The role of elective lymph node sampling remains controversial [4, 6, 8, 14]. Elective lymph node sampling has no survival benefit and leads to significant morbidity [14, 21]. Sentinel lymph node biopsy has recently gained popularity [14, 22]. Since the rate of lymph node metastasis is low, lymph node dissection is not recommended in VPMM [14]. In our study none of the women underwent elective lymph node sampling or lymph node dissection.

Radiotherapy can be applied as primary treatment for patients who are unable or unwilling to have surgery [6, 14, 23, 24]. Radiotherapy can also be applied preoperatively as adjuvant treatment to reduce tumour size and enable more conservative surgery and postoperatively as adjuvant treatment for patients with incomplete tumour resection or with pelvic metastases [6, 14, 23, 24]. In our study one woman (25%) underwent postoperative radiotherapy.

The role of chemotherapy in patients with advanced stage VPMM has not been established [25]. Dacarbazine (DTIC) has been the standard of care for many years in patients with advanced stage CMM, with response rates of 7.5% to 12.1% [26]. In our study none of the women underwent chemotherapy.

Immunotherapy with interferon (IFN) or interleukin-2 (IL-2) confers survival benefits in patients with VPMM at high risk for recurrence, but toxicity is important [8, 27, 28, 29]. IFN has been associated with the generation of autoantibodies and the induction of autoimmune disorders [30]. Immunotherapy has very low activity against metastatic or recurrent CMM [8, 28, 29]. The combination of IFN and IL-2 is superior to IL-2 alone [31]. In our study three women (75%) underwent immunotherapy with IFN.

The combination of chemotherapy and immunotherapy (biochemotherapy) in patients with advanced stage CMM, is associated with an increased response rate, but has the disadvantage of increased toxicity [29]. Although biochemotherapy clearly improves response rates, this does not appear to translate into a survival benefit [29]. The role of biochemotherapy in patients with advanced stage VPMM has not been established [32]. In our study none of the women underwent biochemotherapy.

Despite the treatment modality, 5-year survival in all patients with VPMM ranges from 8.4% to 17.5% [5, 7, 14]. Tumour size (< 3 cm) is the most important prognostic factor, whereas tumor thickness is only a weak predictor of survival [7]. Recurrences of VPMM are most often seen locally in the pelvis or as distant metastases in the lungs, liver, bones and brain [7, 8, 17]. The prognosis of VPMM is very poor, despite the treatment modality, because most cases are diagnosed at late stage [27].

In conclusion, the prognosis of VPMM is very poor despite the treatment modality because most cases are diagnosed at late stage.

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