International Journal of Gynecology and Obstetrics 133 (2016) 80–83

Contents lists available at ScienceDirect

International Journal of Gynecology and Obstetrics

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

CLINICAL ARTICLE

A retrospective study of 152 women with vaginal intraepithelial neoplasia

Jing Zhang [a], Xiaohan Chang [a], Yafei Qi [b], Yao Zhang [a], Shulan Zhang [a,*]

[a] Department of Obstetrics and Gynecology, Shengjing Hospital, China Medical University, Shenyang, China
[b] Department of Pathology, Shengjing Hospital, China Medical University, Shenyang, China

ARTICLE INFO

Article history:
Received 29 March 2015
Received in revised form 27 July 2015
Accepted 3 December 2015

Keywords:
Cytology
Diagnosis
Genotype
HPV
Treatment
Vaginal intraepithelial neoplasia

ABSTRACT

Objective: To analyze the clinical characteristics and treatment of women with vaginal intraepithelial neoplasia (VAIN), as well as HPV prevalence in this population. *Methods:* A retrospective review was undertaken of the medical records of women diagnosed with VAIN at a clinic in Shenyang, China, between January 1, 2009, and December 31, 2012. *Results:* Of the 152 records reviewed, 69 (45.4%) women had low-grade VAIN (VAIN1) and 83 (54.6%) had high-grade VAIN (VAIN2/3). Among 110 patients with an available HPV status, 97 (88.2%) were positive. The predominant HPV types were HPV16, HPV33, HPV81, HPV53, HPV18, HPV58, and HPV66. Previous hysterectomy was documented in 60 (39.5%) patients. Additionally, 80 (52.6%) patients had no history of dysplasia of the lower genital tract. Of patients with VAIN1, 50 (72.5%) were treated by observation only, 31 (62.0%) of whom regressed spontaneously. Of 66 patients with VAIN2, 38 (57.6%) underwent treatment, 14 (36.8%) of whom experienced recurrence or progression. Of 17 patients with VAIN3, 13 (76.5%) underwent treatment, 5 (38.5%) of whom experienced recurrence or progression. *Conclusion:* Evaluation of the entire vagina by colposcopy is warranted in each patient with abnormal cervical screening results. The predominant HPV genotypes among patients with VAIN could be used to establish diagnosis program and develop an HPV vaccine.

1. Introduction

Vaginal intraepithelial neoplasia (VAIN) is an asymptomatic preneoplastic lesion that was first described by Hummer in 1993 [1]. Risk factors for the disorder include HPV infection [2]. The incidence of VAIN is 100 times lower than that of cervical intraepithelial neoplasia (CIN) [3]. However, studies have reported that the prevalence of VAIN has increased steadily in the past four decades [4]. This increase could be a result of improved screening methods, such as cytology, high-risk HPV testing, and colposcopy [5]. Because HPV testing plays a crucial part in screening for VAIN, data on the HPV genotype distribution among affected patients would be useful for the development of screening guidelines for vaginal disease.

The aim of the present study was to analyze the clinical features, diagnosis experiences, treatment modalities, and outcomes among women with VAIN, as well as the prevalence of HPV infection.

2. Materials and methods

A retrospective review study was undertaken of women with histologically confirmed VAIN attending the Cervix Disease Clinic at the Department of Obstetrics and Gynecology of Shengjing Hospital, Shenyang, China, between January 1, 2009, and December 31, 2012. All the included cases had been evaluated by colposcopy and colposcopy-guided biopsy at the clinic and VAIN was histologically diagnosed initially by two independent pathologists at Shengjing Hospital. The present study was approved by the Ethics Committee of Shengjing Hospital of China Medical University. Informed consent was not required because of the anonymity of the patient records.

The clinical characteristics and clinicopathological data were obtained from the hospital's electronic files, including age at diagnosis, symptoms, medical history, cytology results, HPV infection and genotype (identified with HPV gene amplification and genotype test kit, Hybribio, Guangzhou, China), treatment modalities, and outcomes.

Data were analyzed using SPSS version 17.0 (SPSS Inc, Chicago, IL, USA). Associations between variables were assessed using the Pearson χ^2 test or the Student t test, as appropriate. $P < 0.05$ was considered statistically significant.

3. Results

A total of 152 women met the study criteria, all of whom were native to northeast China. The percentage of women diagnosed with VAIN among the total number attending the clinic for colposcopy increased from 0.2% in 2009, to 0.3% in 2010, 0.6% in 2011, and 0.9% in 2012.

* Corresponding author at: Department of Obstetrics and Gynecology, Shengjing Hospital, China Medical University, No. 36 Sanhao street, Shenyang, Liaoning Province, 110004, China. Tel.: +86 18940251863; fax: +86 24 31939023.
E-mail address: 13361963@qq.com (S. Zhang).

http://dx.doi.org/10.1016/j.ijgo.2015.08.014
0020-7292/

The mean age of included patients was 43.2 years (range 20–64). Most patients were asymptomatic, but had abnormal cytology and/or HPV test results following a regular health examination or during follow-up for CIN and cervical cancer (Table 1). Among the eight symptomatic patients, two had vulvar itching, two had vulvar warts, two had vaginal stump bleeding, one had bleeding after menopause, and one had postcoital bleeding. Previous neoplasia of the lower genital tract was noted in approximately 40% of patients, and slightly more than one-quarter had concurrent neoplasia of the lower genital tract (Table 1).

Of the 152 patients, 69 (45.4%) had low-grade VAIN (VAIN1), whereas 66 (43.4%) had VAIN2 and 17 (11.2%) had VAIN3. The mean age of the patients with VAIN1 was 42.4 ± 10.8 years and that of patients with VAIN2/3 was 43.9 ± 9.9 years ($P = 0.364$).

Thin-prep cytology test results were available for 130 patients. Of these patients, 109 (83.8%) had abnormal cytology, including 34 (31.2%) with atypical squamous cells of undetermined significance (ASCUS), 14 (12.8%) with atypical squamous cells but unable to rule out high-grade lesions (ASC-H), 45 (41.3%) with low-grade squamous epithelial lesions (LSIL), and 16 (14.7%) with high-grade intraepithelial lesions (HSIL). The constituent ratio of VAIN1 and VAIN2/3 varied according to cytology (Table 2).

HPV status was available for 110 patients, of whom 97 (88.2%) were HPV positive. The overall HPV-positive rate was slightly higher among patients with VAIN1 (44 [91.7%] of 48 patients) than among those with VAIN2/3 (53 [85.5%] of 62), but the difference was not statistically significant ($P = 0.353$).

A total of 85 patients had HPV genotype testing. The most common HPV genotypes were HPV16, HPV33, HPV81, HPV53, HPV18, HPV58, and HPV66 (Table 3). HPV16 was significantly more prevalent among patients with VAIN2/3 (23 [51.1%] of 45 patients) than among those with VAIN1 (7 [17.5%] of 40; $P = 0.001$). By contrast, when compared with patients with VAIN2/3, more patients with VAIN1 had HPV81 (8 [20.0%] of 40 vs 4 [8.9%] of 45), HPV18 (6 [15.0%] vs 3 [6.7%]), and HPV58 (6 [15.0%] vs 3 [6.7%]; $P > 0.05$ for all).

Multiple HPV infection was identified in 40.0% of patients. Multiple HPV infections were more common among patients with VAIN1 (19 [47.5%] of 40) than among those with VAIN2/3 (15 [33.3%] of 45). Overall, 18 (21.2%) patients had low-risk HPV infections, although 14 (77.8%) of these patients had concurrent high-risk HPV infections; the other four patients had a single infection with HPV81.

Of the 152 patients overall, 60 (39.5%) had previously undergone a hysterectomy. Mean age of these patients at time of VAIN diagnosis was 47.1 ± 6.8 years, which was significantly older than that of patients who had not undergone a hysterectomy ($P = 0.001$). The mean time between hysterectomy and diagnosis of VAIN was 23 months (range 3–120). The indications for hysterectomy were available from the medical records of 53 patients, 48 (80.0%) of whom had undergone a hysterectomy for cervical disease (nine with CIN, four with cervical carcinoma in situ, and 35 with cervical cancer). The other five had other uterine diseases (two with uterine endometrial cancer, one with uterine endometrial complicated atypical hyperplasia, and two with uterine myoma).

Notably, 80 (52.6%) patients had no history of dysplasia of the lower genital tract. Compared with patients who had undergone hysterectomy, those with no history of neoplasia of the lower genital tract were significantly younger (41.6 vs 47.1 years; $P = 0.001$).

Of the 80 patients with no history of genital dysplasia of the lower genital tract, 38 (47.5%) had VAIN only, whereas 42 (52.5%) had VAIN and concurrent CIN. When the available cytology results were analyzed, 30 (93.8%) of 32 patients with VAIN only had LSIL, ASCUS, or normal

Table 1
Characteristics and clinical features of women with vaginal intraepithelial neoplasia (n = 152).

Clinical features	No. (%)
Age, y	
20–29	16 (10.5)
30–39	45 (29.6)
40–49	47 (30.9)
50–59	38 (25.0)
60–69	6 (3.9)
From Liaoning Province	152 (100)
Asymptomatic	144 (94.7)
Symptomatic	8 (5.3)
No referring cytology	22 (14.5)
Referring cytology	130 (85.5)
Negative for intraepithelial lesions or malignancy	21 (13.8)
Abnormal cytology at presentation	109 (83.8)
Atypical squamous cells of uncertain significance	34 (22.4)
Atypical squamous cells but cannot rule out high-grade lesion	14 (9.2)
Low-grade squamous epithelial lesion	45 (29.6)
High-grade intraepithelial lesion	16 (10.5)
Previous or concurrent neoplasia of the lower genital tract	105 (69.1)
Previous neoplasia of the lower genital tract	63 (41.4)
Previous cervical intraepithelial neoplasia	24 (15.8)
Previous cervical carcinoma	35 (23.0)
Previous vulvar intraepithelial neoplasia	4 (2.6)
Concurrent neoplasia of the lower genital tract	42 (27.6)
Concurrent cervical intraepithelial neoplasia	41 (27.0)
Concurrent cervical intraepithelial neoplasia and vulvar intraepithelial neoplasia	1 (0.7)
Hysterectomy	60 (39.5)
Indication for hysterectomy[a]	
Cervical dysplasia	13 (24.5)
Cervical cancer	35 (66.0)
Other uterine disease	5 (9.4)

[a] Data available for 53 patients.

Table 2
Cytology test results.[a]

Cytology	Vaginal intraepithelial neoplasia grade 1 (n = 59)	Vaginal intraepithelial neoplasia grade 2/3 (n = 71)	*P* value
Negative for intraepithelial lesions or malignancy	10 (16.9)	11 (15.5)	0.504
Atypical squamous cells of undetermined significance	19 (32.2)	15 (21.1)	0.109
Atypical squamous cells but unable to rule out high-grade lesion	4 (6.8)	10 (14.1)	0.146
Low-grade squamous epithelial lesion	24 (40.7)	21 (29.6)	0.127
High-grade intraepithelial lesion	2 (3.4)	14 (19.7)	0.005

[a] Values are given as number (percentage) unless indicated otherwise.

Table 3
HPV genotypes (n = 85).

HPV infection	No. (%)
Multiple infection	34 (40.0)
HPV16	30 (35.3)
HPV18	9 (10.6)
HPV31	3 (3.5)
HPV33	14 (16.5)
HPV35	1 (1.2)
HPV39	4 (4.7)
HPV51	4 (4.7)
HPV52	5 (5.9)
HPV53	10 (11.8)
HPV56	4 (4.7)
HPV58	9 (10.6)
HPV59	5 (5.9)
HPV66	7 (8.2)
HPV68	4 (4.7)
HPV6	2 (2.4)
HPV11	2 (2.4)
HPV42	2 (2.4)
HPV81	12 (14.1)