International Journal of Gerontology 5 (2011) 49–52

Contents lists available at ScienceDirect

International Journal of Gerontology

journal homepage: www.ijge-online.com

Original Article

Villoglandular Adenocarcinoma of the Uterine Cervix: An Analysis of 12 Clinical Cases†

Jerry Cheng-Yen Lai [1,2], Jen-Ruei Chen [3], Yu-Jen Chen [2,4,5], Chung-Hua Hsu [1,6,7], Tao-Yuang Wang [8], Yuh-Cheng Yang [2,3,9,10], Tsung-Hsien Su [3,9], Tung-Hu Tsai [1]**, Kung-Liahng Wang [3,9,10]*

[1] *Institute of Traditional Medicine, School of Medicine, National Yang-Ming University,* [2] *Department of Medical Research, Mackay Memorial Hospital,* [3] *Department of Obstetrics and Gynecology, Mackay Memorial Hospital,* [4] *Department of Radiation Oncology, Mackay Memorial Hospital,* [5] *Graduate Institute of Sport Coaching Science, Chinese Culture University,* [6] *Branch of Chinese Medicine, Taipei City Hospital,* [7] *Community Medicine Research Center, National Yang-Ming University,* [8] *Department of Pathology, Mackay Memorial Hospital,* [9] *Mackay Medicine, Nursing and Management College,* [10] *Taipei Medical University, Taipei, Taiwan.*

ARTICLE INFO

Article history:
Received 2 February 2010
Accepted 25 March 2010
Available online 15 March 2011

Keywords:
cervical adenocarcinoma,
cervical carcinoma,
villoglandular adenocarcinoma

SUMMARY

Background: Villoglandular adenocarcinoma (VGA) of the uterine cervix is a relatively rare subtype of endocervical adenocarcinomas that often occurs in early reproductive women.
Methods: Clinical cases were retrospectively collected from the cancer registry systems at Mackay Memorial Hospital (Taipei, Taiwan). Clinical histories on the subjects were extracted directly from chart review of records of clinic visits.
Results: The mean age of 12 subjects was 42 years, with 10 and 2 subjects clinically staged as IB1 (10 of 12) and IA2 (2 of 12), respectively, for the period between January 1, 1996, and December 31, 2007. Eleven subjects had classical Type III radical hysterectomy with or without bilateral salpingo-oophorectomy plus bilateral pelvic lymphadenectomy, and one received pelvic and para-aortic lymphadenectomy plus postoperative adjuvant treatment of weekly cisplatin concurrent with radiotherapy. Only one subject had confirmed pelvic lymph nodes metastases. Nine subjects had pure histologic type and others had mixed histologic type of VGA. Only one subject had a recurrence but was still alive. Most subjects were long-term survivors (greater than 5 years) (10 of 12).
Conclusion: In conclusion, this study confirms the young age of subjects with VGA and reemphasizes the difficulties in the diagnosis of VGA. Because the current management strategy renders good tumor control in young subjects with early-stage VGA, we would suggest that similar treatment should be considered for elder subjects with this rare category of cervical malignancy. Our experience shows that the primary management of subjects with early-stage VGA (International Federation of Gynecology and Obstetrics Stages IA2 to IIA1) is classical Type III radical hysterectomy plus salpingo-oophorectomy with bilateral pelvic lymphadenectomy at MMH. We hope our 12-case experience may contribute to the clinical decision making for subjects with this disease.

1. Introduction

Villoglandular adenocarcinoma (VGA) of the uterine cervix was first reported not too long ago by Young and Scully[1] in 1989. It became a recognized disease entity in World Health Organization (WHO) Histological Typing of Uterine Cervical Cancer[2] starting 1994. VGA represents a rare subtype of endocervical adenocarcinomas among mucinous adenocarcinomas that accounts for approximately 4% of all cervical adenocarcinomas[3]. The characteristic tumor histology of VGA is its extremely villous growth, well-defined papillary architecture, and minimal atypia on cytological features when compared with the common types of cervical adenocarcinomas. Recognition of this tumor as a distinct disease entity is of high clinical importance because VGA often occurs in early reproductive women (with a mean age of 33 years[1]) than other malignant tumors of uterine cervix. Clinically, the relatively indolent behavior of VGA is generally regarded as having an "exceptional better prognosis" and a very good treatment outcome

* *Correspondence to*: Dr Kung-Liahng Wang, Department of Obstetrics and Gynecology, Mackay Memorial Hospital, 92, Section 2, Chung-Shan North Rd, Taipei, Taiwan. Tel.: +886 2 25433535; fax: +886 2 25433642.
** *Correspondence to*: Professor Tung-Hu Tsai, Institute of Traditional Medicine, School of Medicine, National Yang-Ming University, 155 Li-Nong Street, Section 2, Taipei 112, Taiwan. Tel.: +886 228267115; fax: +886 228225044.
E-mail addresses: thtsai@ym.edu.tw (T.-H. Tsai), KL421229@ms6.hinet.net (K.-L. Wang).
† All contributing authors declare no conflict of interest.

1873-9598/$ – see front matter
doi:10.1016/j.ijge.2011.01.009

than conventional cervical adenocarcinomas[1,4], which might allow a more conservative management, especially in subjects who desire to preserve future fertility without a considerable adverse effect on cure rates. A different therapy is, therefore, selected for individual subjects on the basis of clinical experiences for this rare malignancy. We retrospectively analyzed the clinical cases of the VGA of the uterine cervix to learn more about treatment effectiveness in terms of survivorship and to identify possible prognostic factors responsible for the overall survival in women with this rare malignancy. The data that resulted from 12 years of clinical studies on VGA subjects at Mackay Memorial Hospital (MMH) (Taipei, Taiwan) were revisited and reorganized based on the histologic features proposed by WHO[2] in 1994. After careful review, we present 12-case experience about diagnosis, treatment, and prognosis of this carcinoma.

2. Materials and Methods

Individual-subject data were retrospectively collected from the cancer registry systems at MMH. The registry collects basic demographic data on subjects, including age at diagnosis, date of diagnosis, and clinical International Federation of Gynecology and Obstetrics (FIGO) stage of disease at the time of clinical presentation. The review of the cancer registry system was limited to the period between January 1, 1996, and December 31, 2007. All VGA cases identified as "villoglandular adenocarcinoma," "well-differentiated/differentiated villoglandular adenocarcinoma," "adenocarcinoma," "mucinous papillary adenocarcinoma," or "well-differentiated/differentiated adenocarcinoma" in the original pathology report were initially retrieved from the cancer registry system and examined by a gynecologic pathologist (Wang T.-Y., MD). Subject selection was performed by the same pathologist as a means of maintaining internal-data consistency. The criteria used for diagnosing VGA tumors were based on the morphological characteristics as defined by WHO[2]. During the study period, a total of 2,536 subjects were identified with cervical cancer. On reinspection, subjects with squamous cell carcinoma, other types of adenocarcinomas, or those who had only foci of villoglandular patterns were initially excluded from the study. Three of the four cases of adenocarcinoma were reassigned to the category of pure VGA and one to VGA *in situ* combined with focal microinvasive squamous cell carcinoma. Three of the four pure VGA cases were reassigned to the categories of endocervical adenocarcinoma and one to "mixed adenocarcinoma and VGA." One well-differentiated VGA case was reassigned to adenosquamous carcinoma. A total of 14 subjects consistent with VGA were at first retrieved from the cancer registry systems. One subject was lost to follow-up, and a subject chart was incomplete. Only 12 subjects (12 of 2,536, 0.47%) were, thus, identified and selected for the study.

Clinical histories on the subjects were extracted directly from chart review of records of clinic visits. Relevant clinical data included any test results related to the subjects (e.g., age at diagnosis; date of diagnosis; FIGO stage at diagnosis; presenting symptoms; treatment regimes, including surgery, radiation, chemotherapy, or any combination of them; cervical tumor size; locations and microscopic depths of cervical stromal invasion; serum tumor markers [squamous cell carcinoma (SCC), carcinoembryonic antigen (CEA), or cancer antigen 125 (CA-125)], the presence of other histologic types of cervical malignancy; and nature of follow-up). The overall survival was defined as the time from initial diagnosis to the time of death or last follow-up. All survived subjects were followed up until September 30, 2009. The study was approved by the Institutional Review Boards and Ethics Committees of the hospital.

3. Results

The clinical profiles and related statistics of all subjects are given in Table 1. All subjects were adult women with a mean age of 42.4 years (median, 44 years; range, 32–52 years) at initial diagnosis. Most of them were multiparous, nonsmokers, and premenopausal. FIGO Stage IB1 was the most common clinical stage for most subjects (10 of 12). Most of the subjects exhibited pure-type histologic pattern (9 of 12), and only three subjects exhibited mixed-type histologic pattern (3 of 12). The tumors had a mean diameter of 3.43 cm (median, 3 cm; range, 3–4 cm).

Eleven subjects were treated with classical Type III radical hysterectomy (RH) (11 of 12), and none of these subjects received postoperative adjuvant treatment (0 of 11). RH surgeries referred to RH surgery with either bilateral salpingo-oophorectomy (BSO) plus bilateral pelvic lymphadenectomy (BPLND) (RH + BSO + BPLND) (8 of 11); RH plus BPLND (2 of 11); or RH plus BSO, BPLND, and para-aortic lymphadenectomy (PALND) (RH + BSO + BPLND + PALND) (1 of 11). Only one subject received non-hysterectomy surgery (BLPND + PALND), followed by postoperative adjuvant treatment of weekly cisplatin concurrent with radiotherapy (CCRT).

The data on pelvic lymph node (PLN) metastases were available for all subjects. Only one subject was confirmed positive for PLN metastasis, and she was also confirmed positive for PALN metastasis.

Tumor grade was available for all except two subjects with pure-type histologic pattern (10 of 12). Subjects with pure-type histologic pattern had 71% Grade 1 (five of seven) and 29% Grade 2 tumor cells (two of seven), whereas all subjects with mixed-type histologic pattern had Grade 1 tumor cells (three of three).

Table 1
Clinical profiles and related statistics of subjects with villoglandular adenocarcinoma ($n = 12$)

Patient no.	FIGO stage	Age (y/o)	Pathologic diagnosis	Primary treatment	Adjuvant therapy	Follow-up (mo)
1	IA2	32	VGA *in situ* and focal microinvasive SCC	RH + BSO + BPLND + PALND	No	151
2	IA2	46	Pure VGA	RH + BSO + BPLND	No	99
3	IB1	48	Pure VGA	RH + BSO + BPLND	No	153
4	IB1	32	Pure VGA	RH + BPLND	No	117
5	IB1	33	Pure VGA	RH + BSO + BPLND	No	149
6	IB1	39	Pure VGA	RH + BSO + BPLND	No	124
7	IB1	39	Pure VGA	RH + BSO + BPLND	No	109
8	IB1	42	VGA and small foci of SCC *in situ*	RH + BPLND	No	138
9	IB1	47	Pure VGA	RH + BSO + BPLND	No	162
10	IB1	49	Adeno Ca and VGA	RH + BSO + BPLND	No	50
11	IB1	50	Pure VGA	BPLND + PALND	CCRT	110
12	IB1	52	Pure VGA	RH + BSO + BPLND	No	34

Adeno Ca = adenocarcinoma; BPLND = bilateral pelvic lymphadenectomy; BSO = bilateral salpingo-oophorectomy; CCRT = concurrent chemo-radiation therapy; mo = months; FIGO = International Federation of Gynecology and Obstetrics; PALND = para-aortic lymphadenectomy; RH = classical Type III radical hysterectomy; SCC = squamous cell carcinoma; VGA = villoglandular adenocarcinoma; y/o = years old.

Eleven subjects were still alive with no evidence of the disease (11 of 12). Only one subject had a recurrence (1 of 12) but was still alive. Most subjects were long-term survivors (greater than 5 years) (10 of 12). The mean survival time for all subjects was 116.3 months (median, 121 months; range, 34–162 months).

4. Discussion

Although early-stage VGA of uterine cervix is extremely rare, subjects with these diseases are often associated with very good treatment outcome and low recurrences. Many clinicians have attempted to identify the prognostic factors for VGA, but limited clinical cases have rendered all attempts futile. A search of the Medline and Embase electronic databases reveals 118 cases[1,4–32] of VGA reported in the English literature worldwide between 1989 and 2009. Approximately 60% of the retrievable studies are single-case reports. Only four studies have presented a series of more than 10 clinical cases, including studies by Young and Scully (1989)[1]; Jones et al. (1993)[4]; Khunamornpong et al. (2001)[22]; and Utsugi et al. (2004)[31]. This is the fifth study that presents our experience on a small series of 12 clinical cases.

Unlike cervical adenocarcinoma that occurs in subjects whose average age is in the late 40s and 50s, VGA is a well-differentiated form of cervical adenocarcinomas, which occurs predominantly in young women. In the first description of 13 subjects with VGA described by Young and Scully[1], the mean age was 33 years. Jones et al.[4] reported a mean age of 37 years in their study of 24 cases; Khunamornpong et al.[22] described a series of 15 cases with a mean age of 39 years; and Utsugi et al.[31] presented 13 cases with a mean age of 45 years. In our series, the mean age was 42 years. Because RH often gives rise to infertility, the favorable prognosis and the less aggressive behavior often associated with VGA leads some doctors to conduct a more conservative surgical procedure in selected cases of young women with operable diseases, such as conization[1,4,9], especially for those who wish to remain fertile. However, this conjecture still evokes controversy and receives much dispute.

The conventional management of subjects with early-stage invasive adenocarcinomas (Stage IA1 to IIA) is RH with pelvic lymphadenectomy or radiotherapy. Among the 118 reported cases, only 15 subjects underwent conization, 98 had hysterectomies, and 5 received other modalities, such as CCRT. Ninety-eight subjects were managed either by RH (79 of 98), extended hysterectomy (2 of 98), or simple hysterectomy (13 of 98). Surgical procedures of hysterectomy were not mentioned in four subjects. BPLND was conducted in 59 subjects, and 9 of 59 also underwent PALND. In our series, 11 subjects had RH plus BPLND, and one also underwent PALND. Only Patient 11 had BLPND plus PALND and postoperative CCRT.

The diagnosis of VGA has always been challenging for pathologists. Because the reported rate of pretreatment misdiagnosis is often high, the marked distinction in the prognosis between a VGA and a common cervical adenocarcinoma has highlighted the importance of a proper clinical diagnosis of VGA. Only three out of 15 VGA cases were in agreement among the reviewers in a study by Alfsen et al.[33] examining the reproducibility of histological classification of non–squamous cell carcinomas of the uterine cervix. In our series, after reexamination by a pathologist, three cases of pure VGA and one case of VGA *in situ* combined with focal microinvasive squamous cell carcinoma were initially misdiagnosed as adenocarcinoma. On the other hand, three cases of endocervical adenocarcinoma and one case of adenosquamous carcinoma were originally diagnosed as pure VGA cases.

Most studies described VGA as having a good long-term prognosis and being free of recurrences[4,13,17]. However, the four recurred cases reported by MacDonald et al.[26], Korach et al.[30], and Kaku et al.[10] reveal an definite discrepancy between the "excellent better prognosis" of VGA described in the original series of 13 subjects by Young and Scully (1989)[1] and subsequent reports by other authors[13,18,20]. MacDonald et al.[26] described two recurred VGA subjects: one 32-year-old subject, staged IIB, died from recurrence 2 months later after CCRT. The other 31-year-old subject, staged IB2, initially treated by RH plus BPLND, developed vaginal recurrence 6 months postoperatively. Although abnormality disappeared from the vaginal vault after completion of CCRT, metastatic adenocarcinoma with a VGA pattern was discovered as a nodule at the drain site from the original RH. After further nodule excision and completed postoperative radiotherapy, this subject developed a further pelvic recurrence and was then receiving palliative treatment. Korach et al.[30] reported a 34-year-old subject, staged IB1 and having undergone RH plus BSO with BPLND, who died of tumor recurrence in the pelvic sidewall and presacral lesions 2 years after treatment. Kaku et al.[10] reported a 54-year-old woman, clinically staged as FIGO Stage IIB and having undergone RH plus BPLND followed by radiation therapy, who developed vaginal recurrence and died of the disease at 46 months after initial treatment. In our series, Patient 3 was the only subject with recurrence, who was 48 years old and had FIGO Stage IB1 disease. This subject was confirmed negative for both PLN and PALN metastases and was still alive at last follow-up. The case reported in this study would fit with the aforementioned four cases but would probably not be consistent with the original definition by Young and Scully[1].

The presence of lymph node metastases (pelvic or para-aortic) is recognized as one of the most significant prognostic factors that determines recurrences and survival of subjects in cervical adenocarcinomas. Only three deaths out of eight reported cases of lymph node metastases have been reported in three single-case reports[7,26,32] and three series[10,22,31] among 118 VGA cases published worldwide. In our series, lymph node metastasis was observed only in Patient 8, who was confirmed positive for both PLN and PALN metastases.

Our study suffers from insufficient numbers of subjects, which is a common limitation for a rare disease, such as VGA. It would be necessary to enroll very large numbers of subjects to address the various aspects of treatment methods (CT and surgery, alone or in combination) and their clinical roles in VGA.

In conclusion, this study confirms the young age of subjects with VGA and reemphasizes the difficulties in the diagnosis of VGA. Although we have known VGA for 21 years since its first report, the lack of defined clinical and histologic features of this tumor combined with its rarity contributes further to its misdiagnosis. In view of the fact that a subject in our series had recurrence and another subject was confirmed positive for both PLN and PALN metastases, we do not agree with the "excellent prognosis" that is usually related to this disease. Because the current management strategy renders good tumor control in young subjects with early-stage VGA, we would suggest that similar treatment should be considered for elder subjects with this rare category of cervical malignancy. We recommend that the management of both young and elder subjects with VGA should follow the conventional treatments for cervical adenocarcinomas until more evidences are available to us. Our experience shows that the primary management of subjects with early-stage VGA (FIGO Stages IA2 to IIA1) is classical Type III RH plus BSO with BPLND at MMH. We hope our 12-case experience may contribute to the clinical decision making for subjects with this disease.

References

1. Young RH, Scully RE. Villoglandular papillary adenocarcinoma of the uterine cervix. A clinicopathologic analysis of 13 cases. *Cancer* 1989;63:1773–1779.
2. Scully RE, Bonfiglio TA, Kurman RJ, et al. *Histological Typing of Female Genital Tract Tumors. World Health Organization International Histological Classification of Tumors*. 2nd edition. New York: Springer-Verlag; 1994:44.

3. Wells M, Ostor AG, Crum CP, et al. Tumors of the cervix. In: Tavassoli FA, Devilee P, editors. *Tumors of the Breast and Female Genital Organs*. Lyon, France: IARC Press; 2003. p. 262–276.
4. Jones MW, Silverberg SG, Kurman RJ. Well-differentiated villoglandular adenocarcinoma of the uterine cervix: a clinicopathological study of 24 cases. *Int J Gynecol Pathol* 1993;12:1–7.
5. Nagai N, Hirata E, Kusuda T, et al. Villoglandular papillary adenocarcinoma of the uterine cervix responding to neoadjuvant chemotherapy with docetaxel and cisplatin: a case report. *Int J Gynecol Cancer* 2005;15:1187–1190.
6. Utsugi K, Shimizu Y, Akiyama F, et al. Villoglandular papillary adenocarcinoma of the uterine cervix with bulky lymph node metastases. *Eur J Obstet Gynecol Reprod Biol* 2002;105:186–188.
7. Dede M, Deveci G, Deveci MS, et al. Villoglandular papillary adenocarcinoma of the uterine cervix in a pregnant woman: a case report and review of literature. *Tohoku J Exp Med* 2004;202:305–310.
8. Fadare O, Zheng W. Well-differentiated papillary villoglandular adenocarcinoma of the uterine cervix with a focal high-grade component: is there a need for reassessment? *Virchows Arch* 2005;447:883–887.
9. Yamazawa K, Matsui H, Seki K, et al. Human papillomavirus-positive well-differentiated villoglandular adenocarcinoma of the uterine cervix: A case report and review of the literature. *Gynecol Oncol* 2000;77:473–477.
10. Kaku T, Kamura T, Shigematsu T, et al. Adenocarcinoma of the uterine cervix with predominantly villoglandular papillary growth pattern. *Gynecol Oncol* 1997;64:147–152.
11. Costa MJ, McIlnay KR, Trelford J. Cervical carcinoma with glandular differentiation: histological evaluation predicts disease recurrence in clinical stage I or II patients. *Hum Pathol* 1995;26:829–837.
12. Hopson L, Jones MA, Boyce CR, et al. Papillary villoglandular carcinoma of the cervix. *Gynecol Oncol* 1990;39:221–224.
13. Stanley-Christian H, Heim BK, Hines JF, et al. Villoglandular adenocarcinoma of the cervix: a report of three cases and review of the literature. *Gynecol Oncol* 1997;66:327–330.
14. Hurteau JA, Rodriguez GC, Kay HH, et al. Villoglandular adenocarcinoma of the cervix: a case report. *Obstet Gynecol* 1995;85:906–908.
15. Skopelitou A, Hadjiyannakis M. Enteric type villoglandular papillary adenocarcinoma of the uterine cervix associated with in situ squamous cell carcinoma. Case report and review of the literature. *Eur J Gynaecol Oncol* 1996;17:309–314.
16. Borgo G, Feyles E, Gaglio A, et al. Villoglandular papillary adenocarcinoma of the uterine cervix: report of a case. *Tumori* 1998;84:717–719.
17. Datta CK. Well-differentiated papillary villoglandular adenocarcinoma of the uterine cervix. *W V Med J* 1997;93:186–188.
18. Collinet P, Prolongeau JF, Vaneecloo S. Villoglandular papillary adenocarcinoma of the uterine cervix. *Eur J Obstet Gynecol Reprod Biol* 1999;86:101–103.
19. Lakhtakia R, Singh MK, Taneja P, et al. Villoglandular papillary adenocarcinoma of the cervix: case report. *J Surg Oncol* 2000;74:297–299.
20. Bouman A, Oosterhuis GJ, Naudin ten Cate L, et al. Villoglandular papillary adenocarcinoma of the cervix. Beware of a wolf in sheep's clothing. *Eur J Obstet Gynecol Reprod Biol* 1999;87:183–189.
21. Chang WC, Matisic JP, Zhou C, et al. Cytologic features of villoglandular adenocarcinoma of the uterine cervix: comparison with typical endocervical adenocarcinoma with a villoglandular component and papillary serous carcinoma. *Cancer* 1999;87:5–11.
22. Khunamornpong S, Maleemonkol S, Siriaunkgul S, et al. Well-differentiated villoglandular adenocarcinoma of the uterine cervix: a report of 15 cases including two with lymph node metastasis. *J Med Assoc Thail* 2001;84:882–888.
23. Novotny DB, Ferlisi P. Villoglandular adenocarcinoma of the cervix: cytologic presentation. *Diagn Cytopathol* 1997;17:383–387.
24. Heron DE, Axtel A, Gerszten K, et al. Villoglandular adenocarcinoma of the cervix recurrent in an episiotomy scar: a case report in a 32-year-old female. *Int J Gynecol Cancer* 2005;15:366–371.
25. Falcon O, Garcia R, Lubrano A, et al. Successful term delivery following conservative management for villoglandular papillary adenocarcinoma of the uterine cervix: a case report. *Gynecol Oncol* 2006;101:168–171.
26. Macdonald RD, Kirwan J, Hayat K, et al. Villoglandular adenocarcinoma of the cervix: clarity is needed on the histological definition for this difficult diagnosis. *Gynecol Oncol* 2006;100:192–194.
27. Giordano G, D'Adda T, Gnetti L, et al. Villoglandular adenocarcinoma of the cervix: two new cases with morphological and molecular study. *Int J Gynecol Pathol* 2007;26:199–204.
28. Srilatha PS, Roy A. Villoglandular papillary adenocarcinoma of cervix associated with cervical intraepithelial neoplasia: a case report and review of literature. *Indian J Pathol Microbiol* 2007;50:819–821.
29. Lavie O, Segev Y, Peer G, et al. Conservative management for villoglandular papillary adenocarcinoma of the cervix diagnosed during pregnancy followed by a successful term delivery: a case report and a review of the literature. *Eur J Surg Oncol* 2008;34:606–608.
30. Korach J, Machtinger R, Perri T, et al. Villoglandular papillary adenocarcinoma of the uterine cervix: a diagnostic challenge. *Acta Obstet Gynecol Scand* 2009;88:355–358.
31. Utsugi K, Shimizu Y, Akiyama F, et al. Clinicopathologic features of villoglandular papillary adenocarcinoma of the uterine cervix. *Gynecol Oncol* 2004;92:64–70.
32. Garcea A, Nunns D, Ireland D, et al. A case of villoglandular papillary adenocarcinoma of the cervix with lymph node metastasis. *BJOG* 2003;110:627–629.
33. Alfsen GC, Reed W, Abeler VM. Reproducibility of classification in non-squamous cell carcinomas of the uterine cervix. *Gynecol Oncol* 2003;90:282–289.