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Short communication

Limitations of Colposcopy in Early Invasive Cervical Cancer Detection

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A B S T R A C T

Colposcopy is a key element in the diagnostic chain required to reduce cervical cancer mortality but it has limitations in the diagnosis of malignant disease. In the Republic of Croatia the Croatian Society for Colposcopy and Cervical Pathology started constructing guidelines for early detection, therapy and follow-up of patients with early invasive cervical cancer in order to achieve the best possible results in diagnosis, therapy and follow-up. From 2001 to 2006 Croatian society for colposcopy and cervical pathology organised six courses »Role of colposcopy in early diagnosis and prevention of premalignant lesions of the uterine cervix« in cooperation with Medical faculty, University of Zagreb and the Croatian medical chamber. Leading presentations were focused on the epidemiology of cervical cancer, cytologic, colposcopic and pathohistologic classification, HPV testing and role of male partner. After the theoretical part, a series of colposcopic pictures were presented as a practical part of the course where attendees participated in colposcopic images description and estimation of what could be the underlying pathological process. Such, courses are needed for continued medical education and quality practice of colposcopy.

Key words: *early invasive cervical cancer, role of colposcopy*

Introduction

Worldwide, invasive cervical cancer is one of the most frequent causes of death from gynaecological malign diseases, with almost 500,000 new cases per year[1]. Half of cancer cases have a fatal outcome in the first five years following diagnosis. Its incidence is much higher in developing countries; it seems that both the incidence and the mortality rate are rather underestimated in these countries.

In Croatia, according to the 2003 yearbook, 316 new cases of invasive cervical cancer (IC) (13.7/100 000) and 493 cases of carcinoma *in situ* (CIS) were diagnosed. Although the cervical cancer mortality rate is decreasing, 100 women die from this disease every year[2].

Colposcopy is a key element in the diagnostic chain required to reduce cervical cancer mortality but it has limitations in the diagnosis of malignant disease. Herein, these limitations and the way of improvement of colposcopy are presented.

Limitations of Colposcopy

Colposcopy is necessary if the gynaecologist finds no unusual features of the cervix in the patient with symptoms or an abnormal Pap smear (Figure 1 and 2). Colposcopic detection of microinvasive cancer depends on its size and location (Figure 3). Smaller lesions can be missed, but the probability of stromal invasion increases with the size of lesion on the surface of the cervix. Microinvasive cancers on the ectocervix are characterised by atypical blood vessels that are prone to bleeding. These atypical blood vessels are located unusually, distributed randomly, vary in diameter, and often change direction forming sharp angles. The intercapillary distance is also larger than normal and variable.

Invasive carcinomas are visible to the naked eye (Figure 4), but the colposcope enlarges the image showing the surface and the atypical blood vessels more clearly. For example, endophytic tumors often look like erosions but when enlarged, the papillary surface and atypical blood vessels are visible allowing a more accurate diagno-

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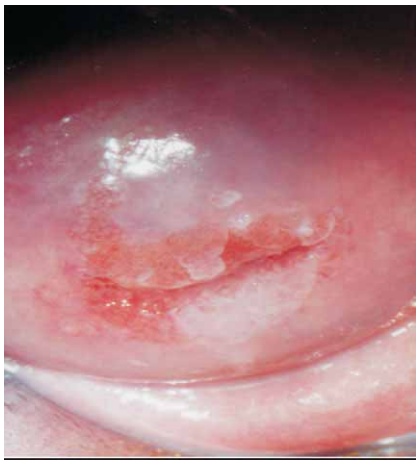

Fig. 1. Slight acetowhitening on the anterior and posterior lip of the uterine cervix – mild HPV change.

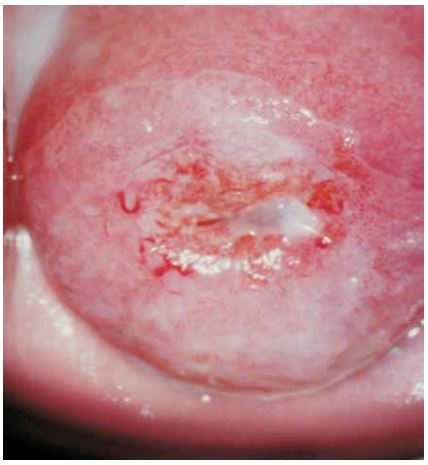

Fig. 2. Coarse acetowhitening – as sign of HPV induced cervical intraepithelial neoplasia.

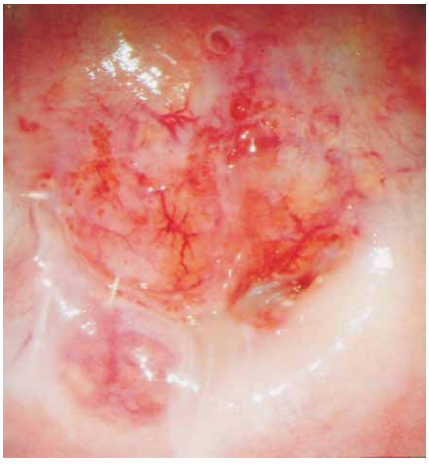

Fig. 3. Microinvasive cervical cancer.

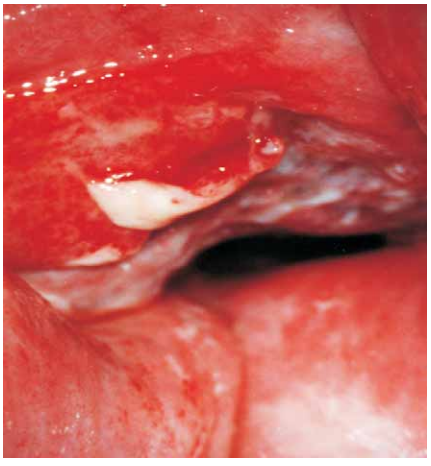

Fig. 4. Invasive cancer of the uterine cervix – pathohistological verification is needed.

sis. Keratosis can mask the colposcopic finding of an endophytic lesion, which is the reason, why biopsy is necessary. Adenocarcinoma has no grossly visible to distinguish it from squamous cancers with all of the vascular changes that have been described so far and a biopsy is required for its diagnosis. If a firm diagnosis cannot be made after the biopsy, diagnostic cone biopsy is recommended.

Basic Directives

Colposcopy classifications and achievements evolved with our understanding of cervical disease and the role of Human papillomavirus (HPV) infection from the Graz classification in 1975 to the Rome classification and finally the Barcelona classification in 2002[3–5]. The Graz classification[3] stated that acetowhite epithelium is a sufficient as an abnormal colposcopic finding. The Rome classification[4] then stated that such epithelium is almost pathognomonic for HPV infection, and can be more or less visible, with or without a borderline. Then, the Barcelona classification[5] added that the acetowhitening can appear quickly and disappear slowly, or appear slowly and disappear quickly and this is related to the intensity of the disruption of intracellular chromatine in the HPV infected cells.

It is important to recognise that colposcopic classification based on the grossly visible features of the cervix is complemented by both cytological classification[6] and pathohistological classification[7]. This necessitates collaboration between gynaecologists, cytologists and the pathologists, to establish protocols for diagnostics and treatment to achieve the best results. Such a protocol established at the conference celebrating 75 years of colposcopy in clinical practice, is a protocol for diagnostics and treatment of premalignant lesions of the cervix and lower genital tract and this has become a landmark for all of us who deal with the subject of preinvasive cervical lesions[8,9].

At clinical training courses in colposcopy and early diagnostics and prevention of neoplastic changes in the lower genital tract the theoretical practice ends with the protocol, and then we present a series of colposcopic images in order to entice discussion on possible gravity of lesions and pathohistological verification. Our great interest in the issue led us to the introduction of those ablation and destruction procedures that will spare the cervix and therefore the reproductive system of our patients, and their health on the whole.

The cytologic and colposcopic protocol that we established for the follow-up after classic probatory excision by forceps (Kevorkian, Thomas Gaylor) or after probatory excision by loop decreases the number of unnecessary cone biopsies by scalpel and diathermic cone biopsies by loop.

In cases of persistent cytologic abnormalities, after biopsy, and a second colposcopic examination, it could be easier to decide on one of such procedures in order to preserve the gynaecological and reproductive health. Although it is necessary to inform the patient that diathermic cone biopsy (LETZ) and classic cone biopsy with scalpel will remove the site of a potentially serious lesion the responsibility lies in the hands of the woman (and her partner) to make sure that such situation does not repeat in the future.

Common Questions in Colposcopic Practice

What happens when disease progresses? The collaboration of the gynaecologist, the cytologist, and the pathologist implies that the current state of a patient needs to be discussed on several levels: the stage of the initial invasion, the sample on which the initial invasion was discovered, age and parity of the patient. After we consider these levels, we can decide on further treatment of the patient.

The earlier the cervical cancer is diagnosed, the better the chances are of successful treatment. However, common issues that arise in clinical practice are:

- Treatment of microinvasive planocellular cervical cancer IA1 diagnosed after LETZ biopsy or classic test excision by forceps when the patient is a nulliparus, or has had one or more full term pregnancies?
- Treatment of microinvasive planocellular cervical cancer IA2 diagnosed after LETZ biopsy, or after classic test excision by forceps when the patient is a nulliparus, or has had one or more full term pregnancies?
- Treatment of microinvasive planocellular cervical cancer IA1 diagnosed after LETZ biopsy or after classic cone biopsy by scalpel when the patient is a nulliparus or has had one or more full term pregnancies?
- Treatment of microinvasive planocellular cervical cancer IA2 diagnosed after LETZ cone biopsy or after classic cone biopsy by scalpel. What if the patient is a nullipara, or if she had a baby once, or more times?

What about the »grey area«? How to treat patients with stromal invasion of more than 5 mm, the spread larger than 7 mm, and the change still not visible to the naked eye? Do they already belong to the IB1 group or not? What about reproduction? What if the finding is an incidental finding at hysterectomy, or at a diagnostic cone biopsy, or at one of the mentioned excohleation of the cervical canal or probatory excisions? All these issues require thorough study keeping in mind FIGO classification which is one of the more acceptable classification systems for all those involved in cervical cancer diagnosis and treatment[10,11] (Table 1).

Training Courses in Colposcopy

From 2001 to 2006, the Croatian Society for Colposcopy and Cervical Pathology organised six courses on the theme of the »Role of colposcopy in early diagnosis and prevention of premalignant lesions of the uterine cervix«, in cooperation with Medical Faculty of the University of Zagreb and the Croatian Medical Chamber[12]. Leading presentations were the epidemiology of cervical cancer, cytologic, colposcopic and pathohistologic classification, HPV testing and role of male partner. After the

TABLE 1
EXISTING PROTOCOL ON TREATMENT OF PATIENTS WITH ABNORMAL PAP SMEAR AND UNSATISFACTORY COLPOSCOPIC FINDING OR WITH MICROINVASIVE CARCINOMA OF SQUAMOUS CELLS ON PROBATORY EXCISION

Status of the excision of microinvasion up to 5 mm or less	Recommendations
Margins clear with negative ECC, stage IA1 with no spread to lymphovascular area	▪ cone biopsy if the patient wants to preserve fertility
Margins and/or ECC positive dysplasia	▪ repeat cone biopsy ▪ modified radical hysterectomy ▪ If conisation not appropriate ▪ Hysterectomy +/– pelvic lymphadenectomy
Stage IA1 with invasion into lymphovascular area	▪ pelvic lymphadenectomy + conisation, or ▪ radical trachelectomy (for fertility reasons) ▪ modified radical hysterectomy and pelvic lymphadenectomy

Adapted from Hacker, 2000[11], ECC – endocervical curettage, LVSI – lympho vascular space invasion, RH – radical hysterectomy

theoretical lectures there was the practical course based on series of colposcopic pictures as practical part of course where attendees participated in colposcopic description and prediction of the underlying pathological process. Among 500 gynecologists from Croatia, 60 of them attended the course and gave the following ratings: the average grade for quality of presentation was 3.98 points (maximum 5.2) and for quality in everyday practice was 3.95 points with the highest grading 5.2 points.

Numerous questions and answers due to diagnostic protocol of early invasive cervical cancer were brought up during the postgraduate clinical training course »Diagnostics, Treatment and Prognosis for Preinvasive Lesions and Carcinoma of the Cervix« held at the Obstetrics and Gynecology Clinic in Petrova in Zagreb, on 7th and 8th April 2006. Critical scientific and practical thinking and the participation of gynaecologists, pathologists, cytologists, radiologists and epidemiologists established firm foundations for a comprehensive insight into this issue.

Conclusion

These foundations created leeway both for experts and young colleagues in these areas of medicine to work on setting up a national programme for cervical cancer screening. Necessary collaboration among complementary specialities, consulting with more experienced colleagues and regular publication of results will improve women's gynecologic health care.

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OGRANIČENJA KOLPOSKOPIJE U OTKRIVANJU POČETNOG INVAZIVNOG RAKA VRATA MATERNICE

SAŽETAK

Kolposkopija je ključni korak u nizu dijagnostičkih postupaka potrebnih u sprečavanju smrti od raka vrata maternice, međutim metoda ima svoje nedostatke u dijagnostici zloćudne bolesti. Uvidom u kretanje pojavnosti raka vrata maternice u Republici Hrvatskoj iskrsava potreba za sveobuhvatnim dijagnostičko terapijskom pristupom u što ranijem otkrivanju, liječenju i praćenju pacijentica s početnim invazivnim rakom vrata maternice. To je prioritetni zadatak Hrvatskog društva za kolposkopiju i bolesti vrata maternice. U okviru postupaka sekundarne prevencije istaknuta je uloga kolposkopije. U razdoblju do 2001. do 2006. godine Hrvatsko društvo za kolposkopiju i bolesti vrata maternice Hrvatskog liječničkog zbora organiziralo je u suradnji s Medicinskim fakultetom Sveučilišta u Zagrebu i Kliničkom bolnicom Sestre milosrdnice šest tečajeva stalnog medicinskog usavršavanja prve kategorije »Mjesto i uloga kolposkopije u ranoj dijagnozi i prevenciji preinvazivnih promjena vrata maternice i donjeg genitalnog trakta. Vodeća poglavlja su bila o pojavnosti raka vrata maternice, zatim citološka, kolposkopska i patohistološka klasifikacija, testiranje na humani papilomavirus (HPV) te uloga muškog partnera u pojavnosti HPV-a. Nakon teorijskog dijela nastavljen je praktički dio u kojem su polaznici sudjelovali u opisivanju kolposkopskih slika i očekivanju kakva je bila patohistološka pozadina kolposkopskog ispoljavanja. Ovakav pristup, nužan je za trajnu edukaciju liječnika i održavanje kvalitete rada kolposkopije.