Clinical cytohistologic correlations of lesions of the female genital tract: Our experience in Panama

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Summary

Between 1982 and 2002, applying the uterine/cervix cancer prevention protocol of the Gynecology Institute of the University of Padua [1] modified to our needs, we diagnosed 5,008 (53.8%) cases of oncogenic risk out of 9,312 evaluated patients.

Values were obtained through the analysis of three diagnostic methodologies: colposcopy, cytology and directed biopsy, taking into consideration the limitations of each one of these and their effectiveness in identifying specific abnormalities or pathologies.

The results fully demonstrate that the integration of the three diagnostic methodologies is necessary to decrease false-negative results.

Key words: Uterine cervical oncogenic risk; Cytology; Colposcopy; Biopsy.

Introduction

More than two decades have passed since the distant years of the 80's in which a group of cytologists of the Social Security Foundation, motivated by its own task, initiated a colposcopy screening program and carried out theoretical and practical colposcopic screening in towns and in rural areas, etc.

Uterine cervical cancer persists and is a problem that is far from being resolved in our country. In this study, we evaluated the diagnostic methodology with the aim of contributing a valid protocol for present and future generations [2, 3].

Oncogenic risk pathology was divided into the four following groups:

1. Oncogenic risk (OR): Colposcopic cases that presented atypical colposcopic images where the respective cytological or histological studies turned out negative.
2. Condyloma (HPV): Cases in which the cytology and/or histology studies reported infection of HPV with a pathological colposcopy and in which they did not have, at the time of the study, dysplasia or cancer.
3. Dysplasia (D): Cases in which the cytology and/or histological studies reported dysplastic changes as single or associated to HPV and whose respective colposcopic study was or was not pathological.
4. Cancer (C): Cases in which the cytology and/or histology studies reported cancer, single or associated to HPV and whose respective colposcopic study was or was not pathological.

We carried out our analysis based on the descriptive diagnosis, (WHO), very well aware of the aims, the advantages and/or limitations compared to other classifications, e.g., Bethesda.

This work was presented in part at the ESGO meeting (1991, 1993).

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Method and Materials

A population of 9,312 women (age range 15-80) was studied in Panama City (6,416 - 68.9%) and in rural areas (2,896 - 31.09%). We applied combined methodologies in the screening: cytology, colposcopy and directed biopsy. Colposcopy and/or directed biopsy were performed only for cases that needed these procedures as a complement to pathological cytology or simply as a verification of a negative or inflammatory cytological study. Colposcopy, cytology and directed biopsy were applied as needed.

The following sequence was carried out in the colposcopic evaluation with the application of the reagents: acetic acid, Lugol solution and sodium bisulphate.

The 5,008 patients considered as having OR represented 53.8% of the 9,312 total patients. The values are significant in comparison with international values and in a certain way justify, the elevated number of cervical uterine cancer cases that reached the rate of 79.0/100,000 women in 1991 [4, 5].

Results

Out of the 9,312 screened patients, 5,008 were detected as having oncologic risk: 14.6% corresponded to OR, 68.8% to HPV infection, 12.8% to dysplasia, 3.8% to uterine cervical cancer and only 0.2% corresponding to cases of Herpes (Table 1).

Regarding diagnostic methodologies, we found there were difficulties with all of them that were obviously not reflected in the statistical numbers. Thus for a better approach, we analyzed the results of the three methodologies applied in relation to the degree of the pathology.

Colposcopy: False-negative results in colposcopic studies represented 25.3%. These were more frequent in the HPV pathologies, followed by dysplasia (Table 2).

The most frequent outcome among the false-negative results was an atypical transformation zone (ATZ) [6].

The pathological colposcopic studies overall reached 74.4% (Table 2).

The most frequent colposcopic abnormalities were ATZ, condyloma in different forms, leukoplakia and atypical metaplasia.

Table 1. — *Screened patients (9.312) and distribution of O.R.*

	No. pts.		% OR
OR	731	(14.6%)	7.8%
HPV	3,437	(68.6%)	37%
Dysplasia	641	(12.8%)	6.8%
Cancer	188	(3.8%)	2%
Herpes	11	(0.2%)	0.1%
Total	5,008	(100%)	53.8%

Table 2. — *Colposcopic findings in patients with OR.*

Negative for OR	Herpes	HPV	Dysplasia	Cancer	OR	Total
Healthy	3	976	117	22	0	1,118 (22.3%)
Colpitis	0	103	22	0	0	125 (2.5%)
Others	0	24	0	0	0	24 (0.5%)
Total	3	1,103	139	22	0	1,267 (25.3%)
Negative for OR	Herpes	HPV	Dysplasia	Cancer	OR	Total
Herpes	7	0	0	0	0	7 (0.1%)
HPV	0	870	70	4	0	944 (18.8%)
M.Alt.	0	254	86	22	106	468 (9.3%)
Leukoplakia	0	441	92	18	268	837 (16.8%)
ATZ	0	648	210	80	275	1,216 (24.3%)
Cancer	0	0	0	27	0	27 (0.5%)
Others	1	121	44	12	64	242 (4.0%)
Total	8	2,334	502	166	731	3,742 (74.7%)
	11	3,437	641	188	731	5,008
	(0.2%)	(68.6%)	(12.8%)	(3.7%)	(14.6%)	(100%)

ATZ: atypical transformation zone.

Table 3. — *Cytopathology reports in the OR group.*

Diagnosis	HPV	Dysplasia	Cancer	OR	Herpes	Total	
NI	36	16	13	39	0	104	
Negative	584	78	11	335	2	1,010	
Inflammatory	675	108	15	357	7	1,163	
Total	1295	202	40	730	9	2,277	(45.6%)
Herpes	0	0	0	0	2	2	
HPV (Typ)	2,014	151	14	0	0	2,179	
HPV (Atyp)	128	29	3	0	0	160	
Total	2,142	180	17	0	0	2,339	(46.7%)
Dysplasia (low)	0	133	7	0	0	140	
Dysplasia (med)	0	95	16	0	0	111	
Dysplasia (high)	0	31	20	0	0	51	
Total	0	259	43	0	0	302	(6%)
CA in situ	0	0	68	0	0	68	
CA invasive	0	0	19	0	0	19	
Adenoca	0	0	2	0	0	2	
Total	0	0	89	0	0	89	(1.7%)
Total pathology	2,147	439	149	0	0	2,732	(54.4%)
Total	3,437	641	188	731	11	5,008	

Table 4. — *Concordance among cytology findings.*

	HPV	Dysplasia	Cancer
HPV	2,142 (62.3%)	180 (28%)	17 (9.1%)
Dysplasia	0	259 (40.4%)	43 (22.8%)
Cancer	0	0	89 (43.3%)
False-negative	1,295 (37.6%)	202 (31.5%)	40 (21.2%)
Total	3,437	641	188

We classified the colposcopic images based on the degree of the pathologies into low, medium and high significance, which permitted the degree of diagnostic pathology and the relationship to be evaluated. Thus, we found that for OR, the most frequent colposcopic degree was medium, whereas in dysplasia and cancer, medium and high degrees, respectively.

ATZ was the most frequent colposcopic result, corresponding to 24.3% of atypical findings: dysplasia, OR, HPV and cancer, in order of frequency.

In evaluating pathologies by degree, we observed that for OR leukoplakia was predominant, for HPV it had different expressions, for dysplasia it was ATZ and for cancer it was ATZ/cancer.

Cytology: Cytological reports of patients with OR showed 45.6% were false-negative results and 54.4% were pathological, of which 46.7% corresponded to HPV infections, 6% to dysplasia and 2% to cancer (Table 3).

Generally, the cytology results showed that the most frequent pathologies in the 5,008 OR patients were typical HPVs, inflammatory processes, and atypical HPV. When this information was analyzed in relation to the pathology report, how is it logical that all OR results were negative, without any difference between the absolute negative results and the inflammatory processes.

Regarding HPV, 62.3% were in agreement with this diagnosis, with typical HPV being the most frequent (Table 4).

For dysplasias, cytology was in agreement with the diagnosis in 40.4% primarily of low degree, followed by medium and high degrees, whereas 28% of diagnosed HPV was represented mainly by typical HPV (Table 4).

Concerning cancer, 43.3% were in agreement, for dysplasia 22.8% and HPV 9.1%. In this pathology, the degree of in situ was mainly diagnosed followed by invasive cancer and adenocarcinoma.

Histology: 3,121 biopsies were taken resulting in: 2,085 HPVs, 565 dysplasias, 319 ORs and 152 cancers. We found 26.2% of false-negative results and 73.7% pathological, corresponding in order of frequency to HPV, dysplasia and cancer (Table 5).

The false-negative results oscillated between 5.9% in cancers and 22.6% in HPV from the total number of biopsies (Table 6).

Analyzing the information by pathology OR inflammation dominated and was considered as a false-negative result.

In HPV, 77.4% was in accord with the two forms of HPV and 22.6% were false-negative results, corresponding to the high incidence of inflammatory processes.

In dysplasias, 79.4% were in accord with the diagnosis; HPV in 13.8% and 6.7% as false-negative results.

Table 5. — *Histologic reports for patients with OR.*

Negative for OR	HPV	Dysplasia	Cancer	OR	Total	
NI	13	0	2	18	33	
Negative	107	3	2	72	184	
Inflammatory	334	35	5	229	603	
Total	454	38	9	319	820	(26.2%)
Positive for OR	**HPV**	**Dysplasia**	**Cancer**	**OR**	**Total**	
HPV (Typ)	1,443	60	8	0	1,511	
HPV (Atyp)	188	18	5	0	211	
Total	1,631	78	13	0	1,722	(54.6%)
Dysplasia (low)	0	276	10	0	286	
Dysplasia (medium)	0	129	4	0	133	
Dysplasia (high)	0	44	19	0	63	
Total	0	449	33	0	482	(16%)
CA in situ	0	0	63	0	63	
CA invasive	0	0	26	0	26	
Adenoca	0	0	8	0	8	
Total	0	0	97	0	97	(3%)
Total	1,631	449	153	0	2,311	(73.7%)
Total	2,085	565	152	319	3,121	

Table 6. — *Concordance among histologic findings.*

	HPV	Dysplasia	Cancer
HPV	1,631 (77.4%)	78 (13.8%)	13 (8.6%)
Dysplasia	0	449 (79.4%)	33 (21.7%)
Cancer	0	0	97 (63.8%)
False-negative	454 (22.6%)	38 (6.7%)	9 (5.9%)
Total	2,106	565	152

Cancer results were in agreement in 63.8%, for dysplasia, 21.7%, HPV 8.6% and 5.9% were false-negative (Table 6).

It is necessary to point out that one of the difficulties in the sample collection was the bad quality of the tongs due to lack of maintenance and also the characteristics of some cervices, which sometimes do not allow sufficient samples to be obtained.

Conclusions

We separately analyzed the different diagnostic methodologies, confirming that each one has benefits and difficulties. With the integration of these methodologies a significant decrease in false-negative results was obtained.

OR pathology showed colposcopy as the best diagnostic criteria. This pathology is of extreme importance because of the high degree of evolution.

HPV showed that cytology together with colposcopy resulted as the most accurate methodology.

Dysplasias showed an association of colposcopy and directed biopsy to have the best diagnosis.

Accurate diagnoses for cancers were achieved with a combination of all three methodologies with colposcopy and directed biopsy also being highly accurate.

We have been able to evaluate the effectiveness of the methods by discovering that combined colposcopy reached 74.7% (Table 2), directed biopsy 54.4% (Table 3) and cytology 73.7% (Table 5), numbers that allowed us to diagnose the presence of OR in many women who were asymptomatic [8].

In conclusion, it is essential to have accurate diagnoses to determine the best treatment protocols for patients. To decrease in the mortality rate, integration of methodologies is extremely important.

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