

Cyto-histological correlation in cervical cytology

Correlación cito-histológica en la citología cervical

Javier Cortés Bordoy , **Ana Forteza Valadés** 

Cytology Laboratory Dr. Cortés, Palma, Spain

Corresponding author

Javier Cortés Bordoy

Cytology Laboratory Dr. Cortés

Alfonso el Magnánimo 29, 07004 Palma, España

E-mail: cortes@oceas.es

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Abstract

The results obtained with the use of a follow-up sheet of cytological results sent to the clinicians responsible for the patients are presented. 81% of responses have been obtained, which has allowed verifying that the rates of final histological diagnoses have maintained an excellent correlation with the initial cytological results, especially in the essential diagnosis, the high-grade intraepithelial lesion of the cervix, a 67% specificity, a percentage within the expected range.

Keywords: Cytology, quality.

Resumen

Se presentan los resultados obtenidos con la utilización de una hoja de seguimiento de resultados citológicos enviada a los clínicos responsables de las pacientes. Se ha obtenido un 81% de respuestas, lo que ha permitido comprobar que las tasas de diagnósticos histológicos finales han mantenido una excelente correlación con los resultados citológicos iniciales, especialmente en el diagnóstico esencial, la lesión intraepitelial de alto grado del cuello uterino, una especificidad del 67%, un porcentaje dentro de lo esperado.

Palabras clave: Citología, calidad.

Introduction

Since its description by GN Papanicolaou¹, cervical cytology (CvC) has played a decisive role in the prevention of cervical cancer (CC). The impacts on its incidence and mortality have been attributed to the systematic application of cytology from first well-executed and documented experiences, especially the so-called Walton Report², which laid the groundwork for the first cytological population screening to prevent CC. Subsequently and to this day, its use has continued applying well-established protocols agreed upon by the main regulatory entities, supranational³ or national⁴.

The fundamental objective of CVC is to enable the histological diagnosis of pre-cancerous lesions of the cervix. Knowing well the natural history of CC makes it possible. In this regard, it is necessary to clarify important differences related to squamous cell carcinoma and adenocarcinoma, the two most common histological forms of CC, in a ratio of 8 to 2 in terms of frequency⁵. The LAST report⁶ established the idea of a binary classification of squamous pre-cancerous

lesions, low and high grade lesions, suppressing the "moderate" ones, a source of diagnostic problems and, consequently, therapeutic ones⁷. This is the dichotomous classification in use in the healthcare environment that we share, and is, consequently, the one used in this work, always bearing in mind that the low grade represents the histological response to HPV infection⁸, with little capacity for progression to a high-grade, authentic pre-neoplastic lesion. On the other hand, we do not know well the natural history of cervical adenocarcinoma. We know that in a high percentage it also responds to the infectious aggression of HPV 5 but we have not been able to safely identify its other possible primary causes or its pre-neoplastic phases, if there are⁹, leading to all of this to an ineffectiveness of the CvC in detecting adenocarcinomas¹⁰, causing that, as we have known for some years¹¹, the decrease that in the population registries of tumors is registered of the CC, thanks to the population-based screening programs - not the opportunists¹² - affects only to the squamous variety.

Figure 1

FOLLOW-UP SHEET				DOCTOR:
NAME		AGE:		CLINIC HISTORY:
CYTOLOGICAL		RESULT:		DATE:
<hr/>				
COLPOSCOPY*	(NO)	(YES)	RESULT:	
<hr/>				
<hr/>				
<hr/>				
<hr/>				
BIOPSY	(NO)	(YES)	RESULT:	
<hr/>				
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<hr/>				
HPV DETERMINATION	(NO)	(YES)	RESULT:	
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* IFCCP Colposcopy Nomenclature. Available on <https://ifcpc.org/medical-professionals/ifcpc-nome>

This high effectiveness of CvC has been unequivocally related with the quality of the cytological take, it means the existence of a good representation of the endocervical and / or metaplastic glandular epithelia, a recognized marker of the quality of the cell sample taken¹³.

In the Laboratory where the authors work, an action has been judged of great interest and has been introduced into our quality control protocols of our work: monitoring the follow-up of reports issued as positive to some degree –following the conceptual terminology recommended by the Bethesda System¹⁴– by referring a file to the clinician responsible for the patient (**Figure 1**), with a double objective: to facilitate him the follow-up of the case and avoid its loss, and at the same time obtain from him the information about its final resolution in order to validate the quality of our reports, thus allowing the proper closure of the case.

In this article we present and discuss the results of this control procedure that were obtained between November 2019 and November 2020.

Material and method

Between November 30, 2019 and November 30, 2020, our Laboratory issued 17,731 CVC reports. The distribution of anomalous results was as follows during this period:

• AGC	11	0.06%
• ASC-H	19	0.11%
• ASC-US	49	0.27%
• LG-SIL	71	0.40%
• HG-SIL	31	0.17%
• Ca	0	
Total	181	1.01%

AGC: Atypia in Glandular Cells

ASC-H: Atypia in Squamous Cells, intraepithelial lesion is not ruled out

ASC-US: Atypia in Squamous Cells of Uncertain Significance

LG-SIL: Low Grade Squamous Intraepithelial Lesion

HG-SIL: High Grade Squamous Intraepithelial Lesion

Ca: Carcinoma

Consequently, 181 follow-up files have been sent to the gynecologists.

Results

147 responses out of 181 files sent have been received: 81.2% responses, according to the following distribution by initial cytological results:

- AGC 9 of 11
- ASC-H 13 of 19
- ASC-US 41 of 49
- LG-SIL 58 of 70
- HG-SIL 27 of 31

In the cases reported as ASC-US, following recommended clinical procedures 4, to perform an HPV determination was recommended. In the cases reported as ASC-US / Human Papilloma Virus (HPV) (+) - 15 out of 41, a 36.6% - or as AGC, ASC-H, LG-SIL and HG-SIL, it was recommended to perform colposcopy⁴.

According to the information contained in the files received, biopsies were taken in 73 cases, distributed as follows by initial cytological results:

- AGC 5 of 9
- ASC-H 11 of 13
- ASC-US/HPV + 13 of 15
- LG-SIL 21 of 58
- HG-SIL 23 of 27

That is, 73 biopsies taken out of a total of 122 positive cytology follow-up reports received.

The final histological results, distributed by initial cytological result, have been the following:

- AGC: 5 biopsies taken 2 Adenocarcinoma
2 Chronic Cervicitis
1 Endocervical Hyperplasia
- ASC-H: 11 biopsies taken 6 HG-SIL
2 LG-SIL
1 Chronic Cervicitis
2 Squamous Metaplasia
- ASC-US/HPV+: 13 biopsies taken 1 HG-SIL
8 LG-SIL
3 Squamous Metaplasia
1 Chronic Cervicitis
- LG-SIL: 21 biopsies taken 3 HG-SIL
16 LG-SIL
2 Chronic Cervicitis
- HG-SIL: 23 biopsies taken 1 Squamous Carcinoma
20 HG-SIL
2 LG-SIL

Discussion

A 1,01% of abnormal cytological results (ACR) is a low percentage if we relate it to a historical reference, not subsequently modified, which evaluated the rate of ACR in a sample carried out at 14 reference Spanish Cytology Laboratories¹⁵, with a sample of 409,443 cytological results that contained 3,56% abnormal results. The reason is in all probability that our Laboratory receives samples from annual reviews, not triennial reviews, as recommended by the Spanish Gynecology Society¹². Annual review yes, but of gynecological health, including all its aspects; It is even possible that certain situations of gynecological pathology require more frequent controls, but the annual preventive control of cervical cancer represents an unjustified over-control¹⁶. We believe that this explanation is at the base of the low percentage of cytological positivities that we are here reporting.

We have received 81% of responses to the follow-up files sent, a percentage that we believe can be considered highly satisfactory and which, in our opinion, indicates the interest that this control initiative has for clinicians who send cytological samples to our Laboratory. This level of response obliges us to continue in this line of collaboration.

73 biopsies have been taken from among the 122 cases of positive cytologies in some degree, 60%, related with complete certainty to the percentage of positive colposcopies carried out from the cytological results, following the recommendations formulated by the Scientific Societies and established in good clinical practice¹². It is a percentage that can be considered within expectations: in a cervical pathology unit the rate of cervical biopsies is around this figure¹⁷. As has been reflected when previously we have facilitated the results of our work, by taking these 73 biopsies the following lesions have been diagnosed:

- 28 LG-SIL
- 30 HG-SIL
- 2 Adenocarcinoma
- 1 Squamous carcinoma

In addition to:

- 1 Endocervical Hyperplasia
- 6 Squamous Metaplasia
- 6 Chronic Cervicitis

Analyzing each of these results in terms of the specificity of our cytological results, we can deduce the following comments:

➤ 28 cases of LG-SIL have been diagnosed, based on the following cytological results:

- > 2 cases of ASC-H
- > 8 cases of ASC-US / HPV +
- > 16 cases of LG-SIL
- > 2 cases of HG-SIL

Consequently, the specificity for this final diagnosis has been 57%, an acceptable figure 4, since we are talking about very initial cytological modifications that can overlap with indeterminate atypia, as in our case, 10 out of 28.

> The 30 cases of histological HG-SIL finally diagnosed arise from:

- > 1 case of ASC-US / HPV +
- > 3 cases of LG-SIL
- > 20 cases of HG-SIL

Consequently, the specificity for this final diagnosis has been 67%, absolutely within the expected range⁴. The cytological result of ASC-H has been the starting point to reach the diagnosis of HG-SIL in 6 cases, an expected situation given the cytological characteristics of this result¹⁴.

We think it is interesting to comment that, as specified, 27 HG-SIL cytological results were issued, but 23 biopsies were taken, since in two cases the colposcopy showed grade 1 changes¹⁸, the clinician deciding not to take a biopsy, as was the case. It occurred in the other two cases, with grade 2 changes¹⁸ in women under 25 years of age in whom strict follow-up of the case was decided, following current recommendations⁴.

> We note that two cases of adenocarcinoma have been diagnosed based on AGC results, of which five

were issued, with also two cases of chronic cervicitis and one case of endocervical hyperplasia as final results. Having detected these two cases of adenocarcinomas represents good news, even if it is based on a lower-range cytological result.

> In the set of the cyto-histological correlation that we are presenting and commenting on, there is a cytological over-diagnosis in thirteen cases. Chronic cervicitis can cause cytological changes that are difficult to demarcate with intraepithelial lesions, as well with a very active initial processes of cervical re-epithelialization, squamous metaplasia. In the first cases and based on these results presented here, requesting post-treatment cyto-colposcopic control of cervicitis that we initially report is a procedure that we follow in our Laboratory, always supported by a personalized contact with the responsible clinician, commenting on the case.

Conclusions

A follow-up card for cytological results shared with the clinician responsible for the patient has shown its usefulness to establish cyto-histological correlations. This evaluation has shown that the issued results corresponded with the expected cervical intraepithelial lesions diagnostic rates.

Establishing mechanisms for monitoring and controlling the cytological reports issued by a Cytology Laboratory is an essential mechanism to assess the quality of its work and to establish the necessary collaboration with the clinical in charge of the patients.

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