

Accuracy of endometrial biopsy with the Cornier pipelle for diagnosis of endometrial cancer and atypical hyperplasia

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Summary

Objective: To establish the accuracy of endometrial biopsy with the Cornier pipelle in the diagnosis of endometrial cancer and atypical endometrial hyperplasia in our milieu.

Material and method: We reviewed 1,535 anatomopathologic reports on endometrial biopsies taken from outpatients using the Cornier pipelle between 1997 and 2000, in pre- and postmenopausal patients with abnormal vaginal bleeding. In 168 patients (10.9%), curettage and/or hysterectomy was subsequently carried out. In these cases, the anatomopathologic reports were compared to determine sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and likelihood ratio (LR).

Results: Sensitivity was 84.2%, specificity was 99.1%, accuracy was 96.9%, PPV was 94.1%, NPV was 93.7% and LR was 93.5. In 249 cases (16.09%) the material was insufficient for study.

Conclusion: We determined that endometrial biopsy taken with the Cornier pipelle is, as we practice it, an accurate method for diagnosis of endometrial cancer and its precursor, atypical hyperplasia.

Key words: Endometrial cancer; Atypical hyperplasia; Endometrial biopsy; Cornier pipelle; Abnormal uterine bleeding.

Introduction

Approximately one third of patients visiting a gynaecologist do so because of abnormal uterine bleeding. This proportion rises to 70% in peri- and postmenopausal women. Endometrial cancer is the commonest gynaecological malignancy, with 36,000 new cases diagnosed yearly in the U.S. [1]. Diagnostic fractional curettage (DFC) remains, particularly among postmenopausal patients, the standard diagnostic procedure for diagnosis of endometrial cancer and its precursors [1, 2]. Nevertheless, a number of new diagnostic tools for use with outpatients have emerged in recent years, including endometrial aspiration biopsy, vaginal sonography and hysteroscopy, leading to a reduction of costs accompanied by a high degree of tolerability by patients.

Endometrial aspiration biopsy is currently one of the basic procedures in the protocol for diagnosis of endometrial cancer and its precursors [1-4]. One of the instruments most commonly used to obtain the sample of endometrial tissue is the Cornier pipelle [5-10]. At our hospital, endometrial sampling with the Cornier pipelle and vaginal sonography are the first two steps in the protocol for diagnosis of abnormal uterine bleeding, monitoring of substitutive hormonal treatment (SHT) or tamoxifen. The purpose of this study was to determine the accuracy of endometrial aspiration biopsy with the Cornier pipelle in the detection of endometrial cancer and atypical hyperplasia in our milieu. Our centre is a regional hospital with 110 beds.

Material and Method

We reviewed 1,535 endometrial biopsies taken with the Cornier pipelle at our hospital between 1997 and 2000.

One hundred and sixty-eight patients (10.9%) had Cornier pipelle biopsies and subsequently histological confirmation since curettage was performed in 92 patients (54.7%) and hysterectomy was performed in 76 (45.2%), subsequent to the biopsy. In 37 cases Cornier pipelle biopsies were non-representative tissue (NRT). These suitable tissues were only available due to curettage and/or hysterectomy. Thirty-six were classified as inactive or atrophied endometrium or negative for malignancy, and only one was an endometrial adenocarcinoma. These cases were not included in the final study.

Finally, only 131 patients had a final anatomopathologic report of curettage and/or hysterectomy with a previous report of a Cornier pipelle biopsy. Thus, a descriptive statistical analysis was done.

All the biopsies, as well as the curettages and hysterectomies, were performed at our hospital by physicians in the Gynaecology and Obstetrics Department. Likewise, all the histopathologic reports were submitted by our pathologist.

Endometrial biopsies were taken from outpatients using a Cornier pipelle at external offices with no prior anaesthesia or analgesia. The samples were preserved in formaldehyde in a plastic container and delivered to the anatomic pathology service. Curettages and abdominal or vaginal hysterectomies were performed using standard techniques under local or general anaesthesia within days of the biopsies.

We considered positive a Cornier pipelle biopsy, curettage and hysterectomy if evidence of malignancy was found and negative if not.

Lastly, we calculated the accuracy (A), sensitivity (SE), specificity (SP), positive predictive value (PPV), negative predictive value (NPV) and likelihood ratio (LR).

Results

The age range of our all patients (1,535) was between 30 and 84 with a mean age of 49.8. The result of the biopsy using the Cornier pipelle was of non-representative tissue (NRT) in 249 patients (16.09% of global account).

Of the 168 patients with Cornier pipelle biopsies and subsequently histologic confirmation, 68 patients (40.4%) were menopausal and the remainder were pre- or perimenopausal. A comparison of the histopathologic reports in 131 patients with both diagnostic methods is shown in Table 1.

Final diagnosis of the patients with positive Cornier pipelle biopsies were as follows: 11 endometrial adenocarcinomas, one serous papillary endometrial carcinoma, and four atypical endometrial hyperplasias. Only one patient was erroneously cataloged as atypical hyperplasia while an endometrial polyp was found by curettage.

One hundred and fourteen patients had negative Cornier pipelle biopsies. In three the anatomopathologic studies found an inactive endometrium, a proliferative endometrium, and a secreting endometrium, but post-hysterectomy reports indicated endometrial carcinoma in two cases and endometrial sarcoma in the other.

The final accuracy for Cornier pipelle biopsy in this group of 131 patients is shown in Table 2.

Table 1. — *Results of comparisons between Cornier pipelle biopsy and the final histological study.*

	Positive aspiration biopsies	Negative aspiration biopsies	Total
Definitive positive diagnosis	16 (12.2%)	3 (2.2%)	19 (14.4%)
Definitive negative diagnosis	1 (0.7%)	111 (84.7%)	112 (85.4%)
Total	17 (12.9%)	114 (86.9%)	131 (100%)

Table 2. — *Accuracy of Cornier pipelle biopsy in our series (n=131).*

Sensitivity	84.2%
Specificity	99.1%
Positive Predictive Value	94.1%
Negative Predictive Value	97.3%
Accuracy	96.9%
Likelihood Ratio	93.5%

Discussion

There is sufficient literature to demonstrate the accuracy of biopsies using the Cornier pipelle for diagnosis of endometrial cancer, as well as its low cost, high tolerability by patients, ease of use and the practical non-existence of associated complications (haemorrhage, perforation, infection, etc.) [6-10]. The objective of this study was to evaluate the accuracy of this tool as used in our Department. As mentioned previously, we routinely carry out vaginal sonography and endometrial biopsies on patients complaining of abnormal vaginal bleeding. In

order to establish the accuracy of the method, we compared the anatomopathologic report on the biopsy with the report on curettage or hysterectomy [2, 6-11]. Diagnostic fractional curettage was carried out in those cases where the diagnosis was positive (cancer or atypical hyperplasia), where we did not obtain representative tissue in patients with risk factors, or where the symptoms persisted in patients without risk factors in spite of a negative anatomopathologic diagnosis for endometrial neoplasia or NRT. In 72 patients, hysterectomy had been performed for different reasons. In the cases where diagnostic fractional curettage was performed followed by hysterectomy, we compared the anatomopathologic report for the latter, since this is considered the gold standard [4]. We did not carry out separate analyses using curettage or hysterectomy as the standard, since some authors state that no significant differences have been found with use of one or the other as a reference [2].

Our results are global and they group pre- and postmenopausal patients, and they also include diagnosis of atypical hyperplasia along with that of endometrial cancer. This circumstance reduces the sensitivity of the method in respect to other authors. In our cases, sensitivity was 84.2%. Dijkhuizen's meta-analysis gives a sensitivity of 99.6% and 91% in postmenopausal and premenopausal patients, respectively, and of 81% for atypical hyperplasia. The method, as used by us, also shows acceptable sensitivity. It is important to bear in mind that the method is more accurate in postmenopausal patients and more accurate in connection with endometrial cancer than with atypical hyperplasia. Overall specificity in this study was over 98% and in our case it was 99.1%. According to the data given by the review carried out by Clark *et al.*, accuracy of the Cornier pipelle varies between 86% and 100% and specificity varies between 97% and 100%. These authors conclude that the method is accurate when diagnosis is positive and less so when diagnosis is negative [12]. We agree with this observation and we proceeded accordingly, i.e., we did not stop at a negative diagnosis from the endometrial biopsy in patients with abnormal vaginal bleeding, particularly postmenopausal patients, but instead routinely performed vaginal sonography with or without physiological serum. Depending on the results, we proceeded to carry out hysteroscopy or curettage. On the other hand, with a positive diagnosis of endometrial cancer, we proceeded directly to definitive surgical treatment, although, as mentioned by Schneider *et al.*, this diagnosis is not useful for determining the degree of advancement of the tumour or its histologic variety [13].

In 19.06% of the cases, the anatomopathologic report showed NRT. In Clark's *et al.*'s review [12], figures vary between 2% and 76%, with an average for the total of 13%. Other authors report 25% and 33% [14]. Of the 37 cases for which we had histologic confirmation from subsequent curettage or hysterectomy, in one case the diagnosis was endometrial adenocarcinoma. Clark *et al.* reported two cases of cancer among 64 cases with anatomopathologic confirmation. We believe that in patients

with abnormal vaginal bleeding where the aspiration biopsy does not provide the anatomopathologist with representative tissue for study, these patients must be re-evaluated and a protocol for action [15, 16] should be established to avoid the excessive use of curettage and also the failure to diagnose a malignant pathology.

Conclusion

In conclusion, we believe that endometrial biopsy with the Cornier pipelle is an accurate tool for diagnosis of endometrial cancer, while bearing in mind that it is highly accurate where the diagnosis is positive. It is thus important to take into account, those cases where diagnosis is negative when representative material is not obtained, particularly in patients with risk factors, and to use other outpatient methods such as vaginal sonography or outpatient hysteroscopy, when available, before routine scheduling of conventional curettage or diagnosis of the absence of any malignant pathology.

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