Original Article

Pathology

Pearl and pitfalls of endometrial curettage with that of Hysterec tomy in DUB.

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ABSTRACT

Aim and objectives : To study and compare the concordance of various histomorphological patterns in endometrial curettage and the subsequent hysterectomy specimen in dysfunctional uterine bleeding and hence to evaluate the causes for the disconcordance.

Material and Method : All the 131 cases which presented with DUB from January 2005 to December 2009 and which underwent endometrial curettage and subsequent hysterectomy were studied and analyzed for concordance and disconcordance.

Results : Our cases ranged in ages from 28–65 years and presented clinically with DUB, the mean duration between the curettage and the hysterectomy being 4.5 weeks.51.1% of the cases showed concordance between the fractional curettage and hysterectomy and the highest concordance was seen in the phasing of the endometrium, followed by complex hyperplasia and then simple hyperplasia. However, 4.58% of the cases of the fractional curettage were inadequate to report.

Conclusion : The consistency rate of the endometrial tissue from the curettage and the hysterectomy specimens was only modest. This rate was lower in simple hyperplasia as compared to complex hyperplasia.

Key Words: Endometrial hyperplasia, Fractional curettage, Hysterectomy, Concordance.

INTRODUCTION

The endometrium is a dynamic tissue with physiological and characteristic morphological changes during the menstrual cycle as a result of the sex steroid hormones which are co-ordinately produced in the ovary. “Dating” the endometrium by its histological appearance is often used clinically to assess the hormonal status, to document the ovulation and to determine the causes of endometrial bleeding and infertility [1].

Endometrial sampling began with the introduction of the dilatation of the cervix and the curettage of the uterus (D and C) in the 19th century and since then it has been considered as a therapeutic procedure for removing the uterine abnormalities including malignancies and for relieving the symptoms of abnormal uterine bleeding. Now, it has been added up with the advantage of providing endometrial tissue for histopathological examination, which remains as the gold standard diagnostic procedure for detecting uterine abnormalities. The routine application of D and C in abnormal bleeding disorders was reappraised in the light of the development of miniature devices and new uterine imaging modalities, which has resulted in less invasive and cheaper out patient biopsy devices [2].

The endometrium can be sampled blindly or under direct and indirect endoscopic vision. The abdominal removal of the uterus is known as total abdominal hysterectomy and the supracervical removal of the uterus is called as subtotal hysterectomy [3]. Charles Clay performed the first subtotal hysterectomy in Manchester, England, in 1843 and the first total hysterectomy in 1929. Since the early 20th century, hysterectomy has been a definite treatment of pelvic pathologies, including fibroid uterus, abnormal heavy bleeding, chronic pelvic pain, endometriosis, adenomyosis, uterine prolapse, pelvic inflammatory disease and cancer of the reproductive organs. It is one of the most common surgical procedures with a rate of 6.1-8.6/1000 in all the age groups . The ultimate diagnosis can be made only by histopathology and so every hysterectomy specimen should be subjected to a histopathological examination [4].

The endometrial mucosa is made up of glands and stroma which are divided into a deep seated basal layer and a superficial functional layer. The basal layer is equivalent to the reserve cell layer of the other epithelia and it is responsible for the generation of the endometrium following menstruation. The functional layer is further subdivided into the strata compactum and the strata spongiosum, whereas the stroma is composed of endometrial stromal cells, vessels and stromal granulocytes.The normal endometrium undergoes a series of sequential changes in the ovulatory cycle and it is associated with changes in both the endometrial glands and the stroma [5].

The cycle begins with the menstrual phase where the shedding of the upper half to two thirds of the endometrium takes place, which is followed by the proliferative phase under the influence of oestrogen which is produced by the granulosa cells of the developing follicles in the ovary.The endometrium undergoes an extremely rapid growth of both the glands and the stroma.The glands are straight and they are lined by regular, tall, pseudo-stratified columnar cells with mitotic figures and the stroma is compact. The post-ovulatory endometrium is marked by secretory vacuoles beneath the nuclei in the glandular epithelium and the glands are tortuous, producing a serrated appearance [1].

Hyperplasia is the increase in the size of an organ or tissue due to an increase in the number of its specialized cells. The endometrium is capable of marked hyperplasia as a response to the stimulus of prolonged and unopposed oestrogen [6]. The current classification which was introduced by Kurman et al 1985, has been accepted by the WHO and the ISGP. This classification considers two criteria (glandular complexity and nuclear atypicality) and there are four diagnostic categories of endometrial hyperplasia: simple hyperplasia (SH), complex hyperplasia (CH), simple atypical hyperplasia (SAH)

and complex atypical hyperplasia (CAH) [7-9].

Endometrial hyperplasia (EMH) is a pathological condition of the endometrium which carries both clinical and pathological significance. It is one of the most important pre-disposing factors for the development of endometrial carcinoma (EMC)

The risk is especially seen with atypical EMH which carries the risk of associated endometrial carcinoma more than EMH without atypia [10]

Studies have shown that only 10–20% of the endometrial hyperplasias progress to carcinomas when they are left untreated. [11] We studied and correlated the consistency between the histopathology of the endometrial curettages and the subsequent hysterectomy specimens.

Traditionally, dilatation and curettage (D and C) has been the method of choice for obtaining an endometrial sample. However, in two studies which comprised of both pre- and post-menopausal women with abnormal uterine bleeding, 40–90% of the polyps and 43–66% of the hyperplasias were missed by D and C [12,13].

There are studies which indicate that both polyps and hyperplasias are the risk factors for developing endometrial carcinoma [14,15].

Endometrial cancer might be detected in women who undergo hysterectomy for benign conditions. This situation is best prevented by the careful evaluation of patients with abnormal uterine bleeding before definitive surgery. During curettage, the entire endometrium must be removed to make an accurate pathological diagnosis. A routine intra-operative opening of the hysterectomy specimen is advised to detect any evidence of endometrial cancer [16].

Endometrial cancer is the third most common malignancy of the female genital tract with an age-standardized incidence rate of 2.9 per 100,000 women. The highest rate accounts for 3.4 per 100,000 women [17].

Approximately 90% of the patients with endometrial carcinoma present with abnormal vaginal bleeding or discharge [18-19]. Any woman who is suspected of having endometrial cancer should undergo endometrial biopsy, fractional uterine curettage or biopsy under hysteroscopy for a definite diagnosis. Because of the 10% false-negative rate of an endometrial biopsy, a negative finding in a symptomatic woman must be further investigated by fractional curettage or hysteroscopy [18].

MATERIAL AND METHODS

A retrospective review of the archives of the Department of Pathology, Vinayaka Mission's Kirupananda Variyar Medical College, Salem, from January 2005 to December 2009, who presented with DUB, were studied .131 cases of endometrial curettage and subsequent hysterectomy specimens were reviewed for histopathology and the results of the curettage specimens were compared to those of the hysterectomy specimens. The concordance and the disconcordance between fractional curettage and hysterectomy with respect to the dating of the endometrium, hyperplasias, and inadequate samples were studied by two pathologists. However, when comparing the dating of the endometrium, the results of the dating of fractional curretage were compared to that of the corresponding date of the hysterectomy and these were analyzed. However, the cases who received hormonal therapy were excluded.

RESULTS

A total of 131 cases with both fractional curettage and hysterectomy from January 2005 to December 2009, which were retrieved from the files of the Department of Pathology, Vinayaka Mission's Kirupananda Variyar Medical College, Salem, were included in the study.

Our cases ranged in ages from 28-65 years, with 63.3% cases falling between the age group of 36-45 years. All the cases presented with DUB. The mean duration between the curettage and hysterectomy in our study was 4.5 weeks, with a wide range of 1-24 weeks and the maximum cases falling between 1-5 weeks.

Among the total 131 cases, 67 cases (51.1%) showed concordance between fractional curettage and hysterectomy. The concordance between fractional curettage and hysterectomy were analyzed by referring the dates of both the procedures for the cases which were dated for the endometrium as proliferative or secretory phase and was 42 (62.68%), concordance in hyperplasias were 25(37.31%). Among the 25 cases which showed concordance, simple hyperplasias showed a concordance of (41.5%) as compared to complex hyperplasias (60%).

The number of cases which were coined as hyperplasias in the fractional curettage group was 44 cases and in the hysterectomy group, it was 40 cases with a concordance of 25 cases (37.31%). There were 19 cases of disconcordance of hyperplasias between fractional curettage and hysterectomy.

Among the 19 disconcordance cases, those which were termed as hyperplasias in the fractional curettage group turned out to be proliferative and secretory endometrium (15 and 4 cases) respectively in the hysterectomy group.

However, 4.58% of the cases which were inadequate in the fractional curettage group turned out to be proliferative (5 cases), and one case turned out to be moderately differentiated adenocarcinoma in the hysterectomy group.

DISCUSSION

Our study is the first study of its kind as it includes all the lesions like the phases of the endometrium, hyperplasias and carcinomas and these were compared between fractional curettage and hysterectomy in a single study without selecting a particular lesion as in the other studies.

All of our cases presented with DUB, which was much higher as compared to the cases in the studies which were done by Dangal G [20] (63% cases only). This pattern can be explained on the basis that most of our cases fell in the reproductive and the perimenopausal age group (36-45years). However, the studies which were done by Dangal G had most of their cases in the postmenopausal age group.

Fifty one percent (51%) of the total cases showed concordance between fractional curettage and hysterectomy and our cases also included a correlation between the endometrial phases and hyperplasia. However, the studies which were done by Xie X et al [10] assessed only the hyperplasia cases with a concordance of 62%, which explained that the cases with hyperplasia showed a greater concordance between fractional curettage and hysterectomy when they were correlated with the phases of the endometrium and carcinomas.

Our study revealed that the concordance between fractional curettage and hysterectomy in phasing the endometrium as proliferative and secretory was 63.62%, with a disconcordance of 35.38%. However, similar studies are not available for comparison

Serial No.	Lesions	Number of cases	%
1	Proliferative / Secretory phase	42	63.62
2	Endometrial Hyperplasia	25	37.3
3	Simple hyperplasia	22/53	41.5
4	Complex hyperplasia	03/05	60

[Table/Fig-1]: Concordance between Fractional curettage and Hysterectomy

Serial No.	Lesions	Number of cases	%
1	Proliferative / Secretory phase	22	35.38
2	Endometrial Hyperplasia	19	43.18
4	Complex hyperplasia	03/05	60

[Table/Fig-2]: Dis-concordance between Fractional curettage and Hysterectomy

Serial No.	Histopathology from fractional curettage	Histopathology from hysterectomy	Upgraded
1	Simple Hyperplasia(17)	Proliferative phase(14) Secretory phase (3)	17
2	Complex Hyperplasia(2)	Proliferative Phase(1) Secretory Phase (1)	02

[Table/Fig-3]: Upgrading lesions in fractional curettage with that of hysterectomy specimen (n = 19).

Serial No.	Histopathology from fractional curettage	Histopathology from hysterectomy	Down-graded
1	Proliferative Phase(9) Secretory(5) Irregular endometrium(1) Biphasic(1)	Simple Hyperplasia(16)	16
2	Proliferative Phase(0) Secretory(0)	Complex Hyperplasia(0)	00

[Table/Fig-4]: Downgrading lesions in fractional curettage with that of hysterectomy specimen (n = 16).

Serial No.	Histopathology from fractional curettage	Histopathology from hysterectomy
1	Inadequate Sample(5)	Proliferative endometrium(5)
2	Blood clot(1)	Moderately differentiated adenocarcinoma.(1)

[Table/Fig-5]: Comparison of inadequate samples in fractional curettage with that of hysterectomy specimen (n = 6).

in the literature. However, the concordance between fractional curettage and hysterectomy were obtained by us by referring to the dates of both the procedures and these were analyzed later for the same.

A total of (37.3%) of the hyperplasia cases showed concordance between fractional curettage and hysterectomy in our study,19 cases termed as hyperplasia in fractional curettage turned out to be proliferative and secretory endometrium (15 and 4 cases) respectively. However studies by Somneuk et al showed a concordance of 41.3%.This low rate of concordance of endometrial hyperplasia can be explained, as most of our study population included were peri-menopausal women, and previous studies by Somneuk et al 10 have compared and proved that concordance are high in post-menopausal women than in peri-menopausal women.

On the comparison of each subtype of endometrial hyeperplasias, our study disclosed a concordance of 41.5% and 60 % in the simple and complex hyperplasias respectively, whereas the studies by Xie X et al showed a concordance of 88% and 92% for simple hyperplasia and complex hyperplasia respectively. These findings can be explained on the basis that most of our cases had a mean interval duration of 1-5 weeks between the curettage and hysterectomy ,whereas the studies by Somneuk et al [10] had a wide time duration of 1.4-34.9 weeks, which bought some time for the cases of endometrial hyeperplasias to regenerate before the hysterectomy.

Comparison of the cases within our study showed a reduced concordance in the cases of hyperplasia, because those cases which were quoted as simple hyperplasias were completely removed during the curettage, leaving behind the basal endometrium only, which was downgraded as a proliferative endometrium because of the short time gap between the curettage and hysterectomy. The complex hyperplasias with a higher degree of proliferation were not totally scraped out, thus rendering more number of patients with consistent histological findings, hence giving a high degree of concordance for complex hyperplasias.

Another possibility of the inconsistent diagnoses was the reproducibility of the tissue diagnosis as was mentioned by Trimble et al [10].

6(4.58 %) of our cases of curettage were not satisfactory for reporting and among them five cases were inadequate and one case was purely a blood clot which turned out to be proliferative and moderately differentiated adenocarcinoma on hysterectomy respectively. The studies by Elisabeth et al missed sixty percent of the complex atypical hyperplasias, 11% of the endometrial cancers, and one adenosarcoma by D and C.

Nevertheless, our results and those of Stovall [12] and Valle et al [13] suggested that both the benign and malignant pathologies may quite frequently be missed by D and C, hence laying more emphasis on hysterectomy.

CONCLUSIONS

Dysfunctional uterine bleeding was the commonest clinical presentation in the peri-menopausal age group. The cases of complex hyperplasia showed a higher concordance rate than those of simple hyperplasia, as the disconcordance between the endometrial curettages and the hysterectomy specimens remained high. Hence, they demanded awareness from the clinicians in not considering fractional curettage as the final diagnosis and instead to consider hysterectomy as the gold standard, especially in fractional curettage with the results of simple hyperplasias.

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