

Background: Abnormal uterine bleeding is one of the common complaints warranting a search for endometrial abnormalities. Curettage specimens are valuable for histological diagnosis of a spectrum of endometrial lesions from placental tissue and infections to the precursor lesions of endometrial carcinoma. **Objective:** To determine the frequency and age distribution of the lesions present on histopathological evaluation of endometrial curettage specimens in Makurdi, Nigeria. **Materials and Methods:** This was a retrospective analysis of endometrial curettage tissue samples submitted in the pathology laboratory of Benue State University Teaching Hospital, Makurdi, Nigeria from October 2012 to December 2016. The tissues were received in 10% formalin, processed and the tissue sections were stained with haematoxylin and eosin routinely. **Results:** Endometrial curetting specimens constituted 4.7% (132/2809) of the total number of specimens accessioned during the period of review. One hundred and five (82%) of the specimens were from premenopausal women. Retained products of conception was the most common entity in premenopausal women, accounted for 47.7% (61/128) and had a mean age of 29.3 ± 6.7 years. Other lesions included decidual reaction (10.2%, 13/128), Arias Stella reaction (8.6%, 11/128) and chronic endometritis (3.9%, 5/128). Endometrial hyperplasia was the most common lesion in both the perimenopausal (7%, 9/128) and postmenopausal (4.7%, 6/128) women. Endometrial carcinoma accounted for 3.1% (4/128). **Conclusion:** This analysis of endometrial curettings showed that retained products of conception were most common in premenopausal women while endometrial hyperplasia, a cancer precursor lesion, occurred mainly in perimenopausal and postmenopausal women.

Keywords: uterus, endometrial curetting, products of conception, endometrial hyperplasia, endometrial carcinoma.

The direct visualisation of cellular changes in samples obtained by biopsy, curettage, manual vacuum aspiration or polypectomy is the accepted gold standard for investigating endometrial abnormalities. Abnormal uterine bleeding, due to either functional or organic causes, is a common indication for sampling the endometrium for histological evaluation. The pattern of

the bleeding especially in premenopausal women may include menorrhagia, metrorrhagia, metromenorrhagia and polymenorrhoea [1]. Curetting samples provide useful materials that enable the diagnosis of a wide variety of conditions such as retained products of conception, infections, premalignant lesions and malignant lesions, as well as for the investigation of infertility. Endometrial curetting specimens are pertinent for the diagnosis of endometrial carcinoma and its precursor lesions. The literature shows the usefulness of these sample types, validated by satisfactory accuracy studies; sensitivity and specificity data [2, 3]. A wide range of non-invasive modalities such as hysteroscopy, ultrasound, magnetic resonance imaging and other sophisticated techniques are not only available but also easily accessible by women in developed societies. This study described the spectrum of histological findings in endometrial curetting samples accessioned in the pathology laboratory of a tertiary institution in a resource deficient community in Nigeria where there is limited access by women to the less invasive techniques.

Materials and methods

This was a retrospective analysis of endometrial curettage tissue samples submitted in the pathology laboratory of Benue State University Teaching Hospital, Makurdi, Nigeria. The materials for this study consisted of the archival paraffin blocks, glass slides and duplicate copies of the laboratory reports of the endometrial curetting samples from October 2012 to December 2016. The specimens were preserved in 10% formalin, processed and embedded in paraffin wax. The 3-5µm thick sections made from the paraffin embedded tissue blocks were stained with hematoxylin and eosin routine stains. Demographic information were available from the duplicates of the laboratory reports. Specimens considered inadequate for various reasons and hysterectomy specimens were excluded from this analysis. Ethical clearance was obtained from the local institutional research ethics committee. The resulting data were computed using Microsoft Excel statistical package.

Results

Endometrial curetting specimens constituted 4.7% (132/2809) of the total number of specimens accessioned during the period of review. Four specimens, adjudged inadequate, were excluded from the analysis. Therefore, one hundred and twenty eight specimens were evaluated. One hundred and five (82%) of the specimens were from premenopausal women. Products of conception were the most commonly diagnosed entity encountered in premenopausal women and overall accounted for 47.6% (61/128). These occurred mainly

(90%, 55/61) between the ages of 20 and 39 years and had a mean age of 29.3 ± 6.7 years. Endometrial hyperplasia was most common in both the perimenopausal (7%, 9/128) and postmenopausal (4.7%, 6/128) women as shown on **Table 1**.

Table 2 shows the detailed distribution of the precursor lesions of endometrial carcinoma observed in this study. There were 21(16.4%) cases of endometrial hyperplasia. These were most common within the 40-49 years age group making up 38.1% (8/21) of all the cases of this tumour and had a mean age of 45 ± 14.7 years. The largest proportion of these cases were simple endometrial hyperplasia without atypia (12.5%, 16/128), followed by complex endometrial hyperplasia without atypia (3.1%, 4/128) and only one (0.8%) complex endometrial hyperplasia with atypia case (**Table 2**).

Other histological lesions such as decidual reaction (10.2%, 13/128), Arias Stella reaction (8.6%, 11/128) and chronic endometritis (3.9%, 5/128) were also found.

The malignant conditions included endometrial carcinoma, choriocarcinoma and endometrial stromal sarcoma. The most common malignant lesion was endometrial carcinoma, accounting for 3.1% (4/128) of all the endometrial curetting specimens. This had a mean age of 59.5 ± 5.8 years, and was most common in postmenopausal women. The subtypes of this cancer, endometrial carcinoma type I (endometrioid), had an average age of 57.8 ± 5.8 years and was encountered in 2.3% (3/128) women, while endometrial carcinoma type II (atrophic), had a somewhat lesser mean age of 54.5 years and was found in one woman (0.8%) only.

83

Table 1: Endometrial lesions found on histological evaluation of endometrial curetting samples (n=128)

Findings in endometrial curetting specimens	Mean Age ($\pm$ SD)	Premenopausal < 40 years (n=105)	Perimenopausal 40 – 55 years (n=14)	Postmenopausal >55 years (n=9)	Total	Percentage (%)
Normal endometrium	24.5	2 (1.6%)			2	1.6
Products of conception (Placental tissue)	29.3 $\pm$ 6.7	57 (44.5%)	4 (3.1%)		61	47.6
Decidual reaction	26.8 $\pm$ 4.4	13 (10.2%)			13	10.2
Arias Stella	32.7 $\pm$ 4.0	11 (8.6%)			11	8.6

reaction						
Chronic endometritis	28.5±5.5	5 (3.9%)			5	3.9
Hydatidiform mole	25.8±3.5	8 (6.2%)			8	6.2
Choriocarcinoma	24.5	2 (1.6%)			2	1.6
Endometrial hyperplasia	45±14.7	6 (4.7%)	9 (7.0%)	6 (4.7%)	21	16.4
Endometrial carcinoma	59.5±5.8		1 (0.8%)	3 (2.3%)	4	3.1
Endometrial stromal sarcoma	24.5	1 (0.8%)			1	0.8

SD; standard deviation

Table 2: Frequency distribution of the endometrial carcinoma precursor lesions (n=21).

Age Group	Simple Endometrial Hyperplasia without Atypia (n=16)	Complex Endometrial Hyperplasia without Atypia (n=4)	Complex Endometrial Hyperplasia with Atypia (n=1)	Total	Percentage
20-29	4 (19.0%)	1 (4.8%)	-	5	23.8
30-39	1 (4.8%)	-	-	1	4.8
40-49	6 (4.8%)	2 (9.5%)	-	8	38.1
50-59	1 (4.8%)	-	1 (4.8%)	2	9.5
60-69	4 (19.0%)	1 (4.8%)	-	5	23.8
TOTAL	16	4	1	21	100

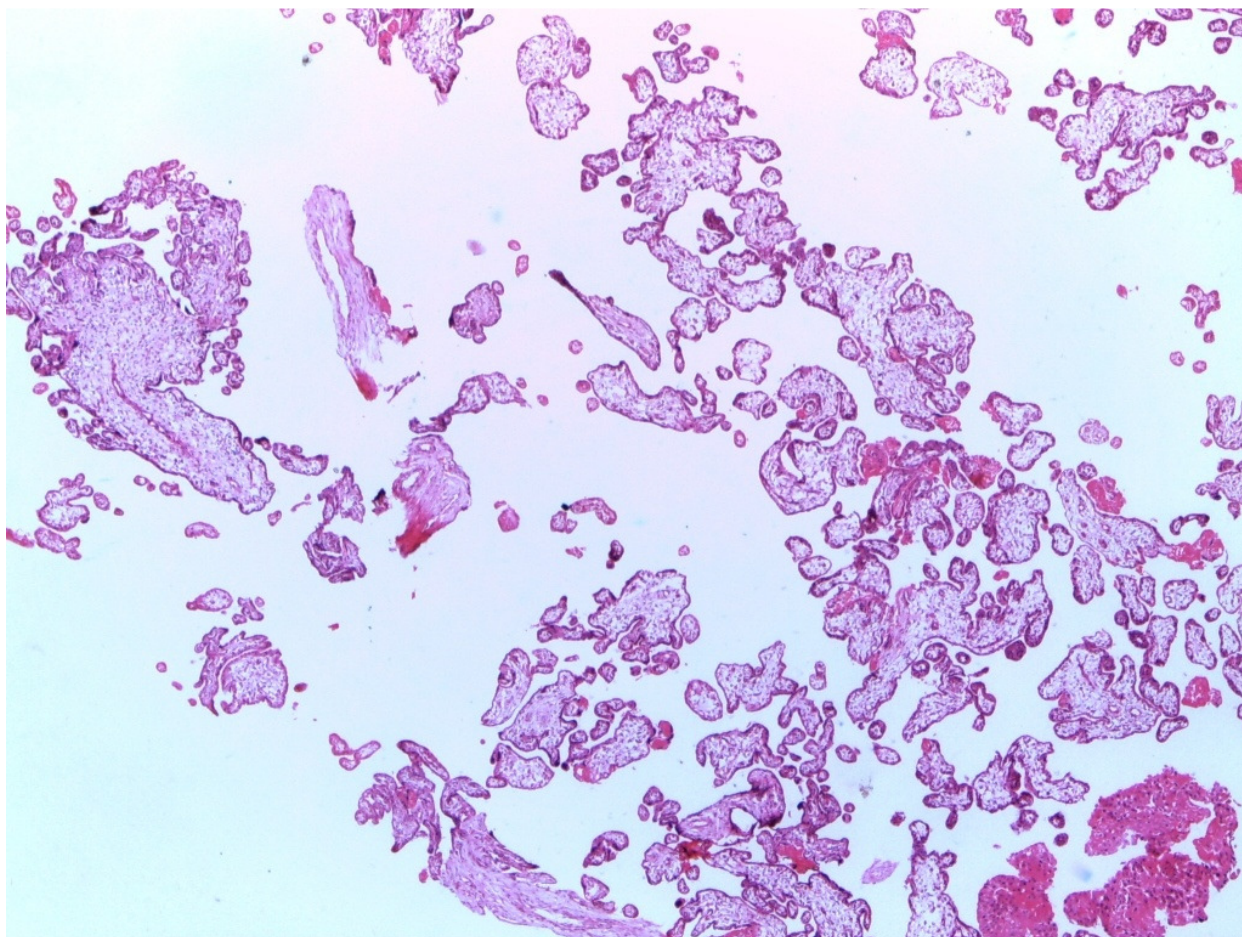


Figure 1: Products of conception. The numerous chorionic villi shown here each has a core of pale staining myxoid tissue and covered by basophilic trophoblast. This consists of the outer syncytiotrophoblast and cytotrophoblast. [*x 4 objective magnification; H & E stain*]

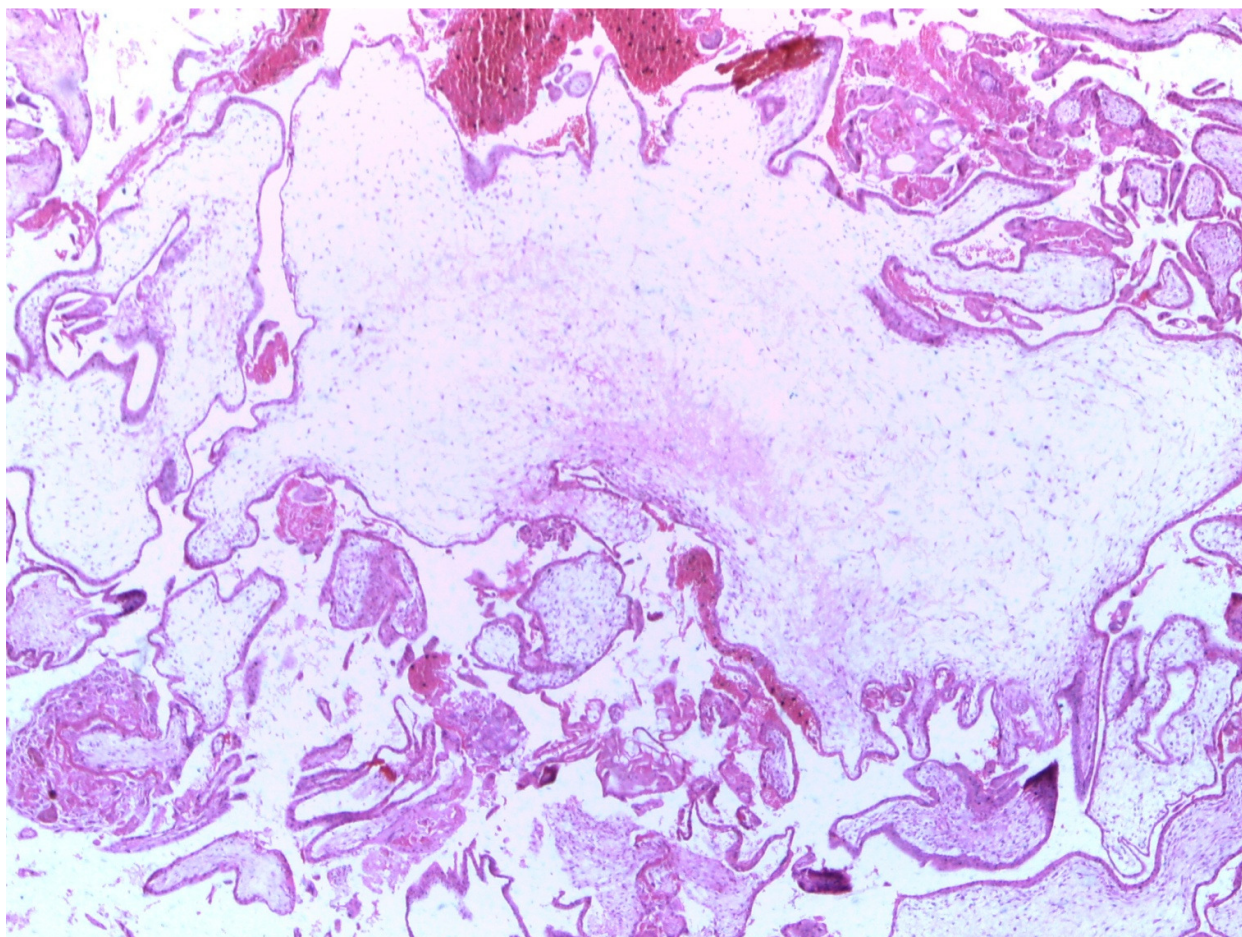


Figure 2: Partial hydatidiform mole. There is a mixture of large hydropic and normal sized chorionic villi. Trophoblastic inclusions formed from infoldings of the trophoblast are present in the myxoid core of some villi. [*x 4 objective magnification; H & E stain*]

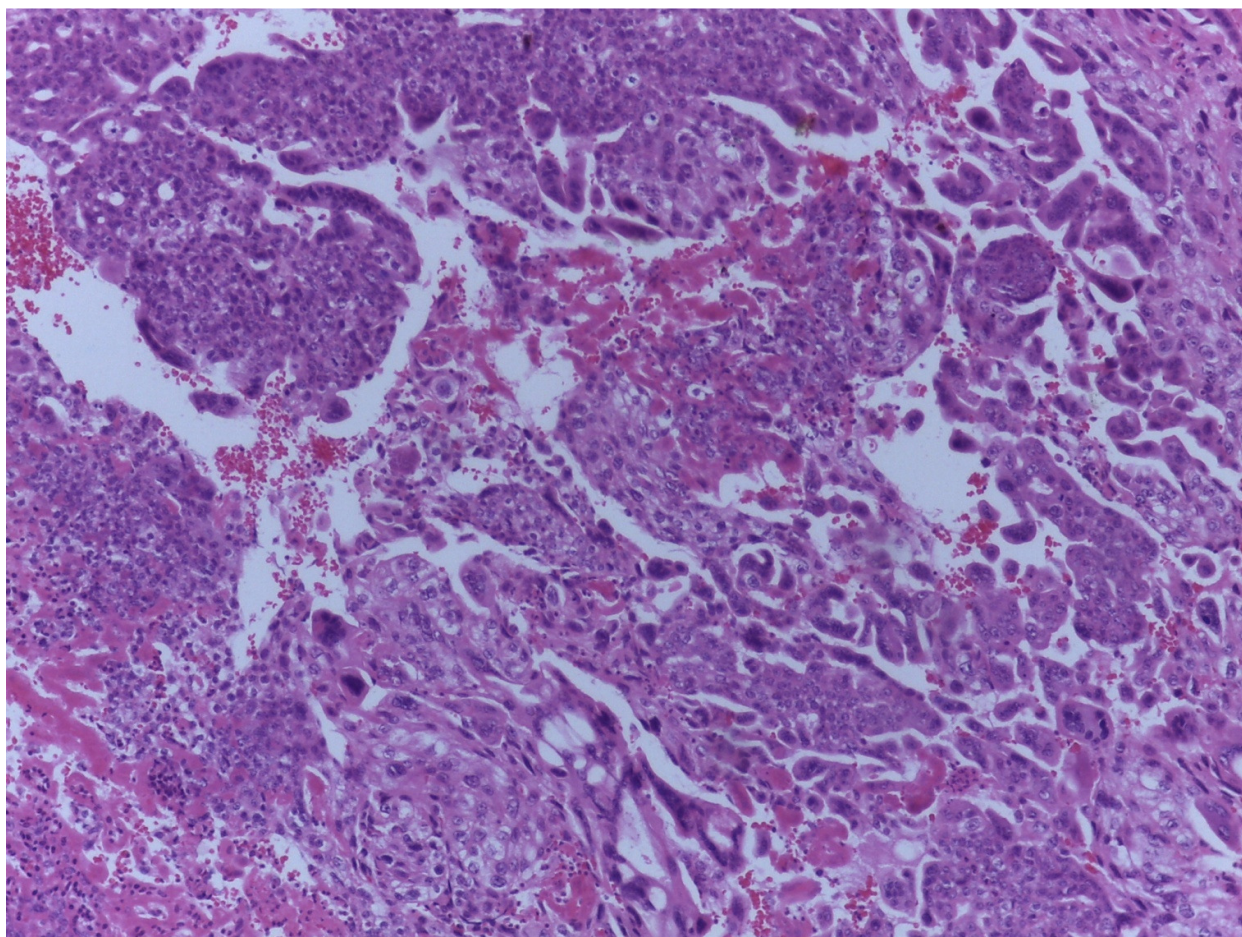


Figure 3: Choriocarcinoma. This is a mixture of syncytiotrophoblast, intermediate, and cytotrophoblast cells, haemorrhage and necrosis. The syncytiotrophoblast consists of large multinucleated cells while the cytotrophoblast is represented by pleomorphic cells with well defined cell boundaries, clear cytoplasm and vesicular nuclei. [*x 4 objective magnification; H & E stain*]

Discussion

Endometrial curetting samples were most common within the premenopausal age group probably because of the high occurrence of pregnancy related abnormalities in this group particularly vaginal bleeding due to inevitable, threatened or even criminal abortions. Thus, there was a high preponderance of retained products of conception observed in our study comparable to reports from other places. For instance, at Illorin, north central Nigeria, six hundred and three cases (4.2%) of miscarriages were recorded against 14,522 deliveries over a period, which gave a ratio of one miscarriage for every 24 deliveries [4]. To confirm pregnancy, the curetted products are usually examined for either the presence of chorionic villi lined by trophoblastic cells or fetal membranes. Similarly, products of conception also

ranked first in an analysis of 231 endometrial curetting specimens in Benin, mid-western, Nigeria, representing 27.7% (64/231) of all the specimens [5]. This figure, however, is a little less than half of the proportion (47.6%, 61/128) we obtained in Makurdi. An even lesser figure was reported in Maiduguri, northeast, where products of conception ranked second (10.2%) to endometrial hyperplasia in an analysis of 801 endometrial samples obtained over a twenty-year period [6].

Endometrial hyperplasia is an important cause of abnormal bleeding and it often precedes the development of endometrial carcinoma [7, 8]. On histology, this condition appears as proliferating endometrial glands of irregular size and shape, and increased gland to connective tissue stroma ratio; this sometimes manifest with packed back-to-back glands separated by a minimal amount of stroma [7]. Hyperplasia is postulated to be a predictable response to persistent and excessive oestrogen stimulation from a variety of sources [8]. This cancer precursor lesion ranked second in our study and accounted for 16.4% (21/128) of the specimens, and as shown on **Table 2**, most of them were simple hyperplasia without cytological atypia. Although simple endometrial hyperplasia ranked high in many places, there is a significant variation in the proportion obtained in different regions. For instance, 12.1% was found in our study, 10% was reported by Forae et al in Benin, Ikeme et al reported 20% from Enugu, and Takai et al, 56.2% from Maiduguri, all in Nigeria [5, 6, 9]. In India, authors such as Kau et al (12%), Chitra et al (16.2%), kunda et al (22%) and Soleymani et al (2.5%), have also reported different proportions [1, 10, 11, 12]. The figure from Maiduguri is significantly higher than our findings and those from the other centres. However, our study is similar to the findings of Forae et al because endometrial hyperplasia was most common among postmenopausal women in Benin.

Endometrial carcinoma has been described as the most common invasive cancer of the female genital tract and the fifth most common cancer in women [7, 8]. It was most common in postmenopausal women and accounted for 3.1% (4/128) in our analysis. This is more than twice the 1.5% reported from Maiduguri but similar to the 1.7% reported from Benin. A two-year prospective comparative analysis of 100 samples in India gave a proportion of four per cent [11]. Type I (endometrioid) endometrial carcinoma occurred in 2.3% (3) of the women in our study. This subtype typically arises in the setting of hyperplasia, and it is associated with obesity, diabetes, hypertension and infertility, and PTEN mutations [8]. Standard literature defines the expression of pan-cytokeratins, epithelial membrane antigen (EMA), CA125, Ber EP4 and CEA in endometrioid carcinomas. Unfortunately, our facility lacks the capacity to carry out immunohistochemical staining at present. The rarer type II that is more

likely to occur in the setting of atrophy also tends to be poorly differentiated. There was no case of endometrial atrophy found in this study.

Deaths from endometrial carcinoma represented 2.0% (20) of 986 female deaths in an analysis of 1,436 cancer related deaths in all genders in Lagos and gave a rate of 1.4 deaths per year [13]. Similarly, endometrial carcinoma accounted for 3.8% (63) of 1651 female cancer related deaths reported in a review of autopsies and hospital mortality in a Ghanaian tertiary hospital [14].

Conclusion

Histological evaluation of endometrial curettage specimens is valuable technique to identify a variety of causes of abnormal uterine bleeding. Confirmation of the diagnosis of retained products of conception was the most common reason for curetting the uterus in premenopausal women. The cancer precursor lesion, endometrial hyperplasia, was predominant in both the perimenopausal and postmenopausal period. Prompt and accurate investigation of abnormal bleeding in the postmenopausal women is essential because endometrial carcinoma, a significant cause of female cancer death, was most common in this age bracket.

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