УДК 618.14-006.5-07

A. J. Kamara, A. Mapalagama

Scientific supervisor: MD, PhD, G. V. Tishchenko

Educational institution
"*Gomel state medical university*"
Gomel, Republic of Belarus

ENDOMETRIAL POLYPS: A COMPREHENSIVE EXPLORATION

Introduction

Endometrial polyps (EMP) well known as uterine polyps are noncancerous (benign), localized overgrowths of endometrial tissue that protrude into the uterine cavity. Endometrial polyps are the most frequently observed pathological finding and they are known to be a common gynecological condition often discovered incidentally during investigations for abnormal uterine bleeding or infertility in women [1]. EMP occur as an overgrowths of endometrial glands and stroma around a vascular core that form a sessile or pedunculated projection from the surface of the endometrium. If EMP is attached to the uterine surface by a narrow elongated pedicle, then it is known as pedunculated, however, if they have a large flat base, absence of a stalk, they are known as sessile [3]. The exact prevalence of EMP are unknown and are said to be asymptomatic. Majority of polyps are located in the fundus, often in the corneal area, and in this area there are obvious technical difficulties for removal by curettage [2]. The size of these polyps can vary from a few millimeters to several centimeters (golf-ball-size or larger) [4]. EMP are most common in people who are going through or have completed menopause (can be found in all age groups but mostly common between age 40 and above 50yrs) [6]. EMP is one of the most common etiologies of abnormal genital tract bleeding in both premenopausal and postmenopausal patients. Unlike polyps of other etiologies (e.g. colon), the vast majority of endometrial polyps are neither malignant nor premalignant [5].

The pathogenesis and etiology of EMP are not very clear, exact cause of EMP is unknown. However, there are several theories proposed relating to the etiology and pathogenesis of these lesions [7]. Research shows that hormone levels may be a factor and they are believed to be related to estrogen stimulation [8]. Estrogen plays a role in causing the endometrium to thicken each month during menstrual cycle. This thickening likely contributes to uterine polyp growth. Despite estrogen, several molecular mechanisms have been proposed to play a role in the development of endometrial polyps. These include monoclonal endometrial hyperplasia, overexpression of endometrial aromatase, somatic gene mutations, and age-related accumulation of low-frequency single nucleotide variants in oncogenes, including mutations in KRAS, PTEN, and TP53. Like uterine leiomyomas, polyps have characteristic cytogenetic rearrangements. Rearrangements in the high-mobility group family of transcription factors appear to play a pathogenic role. EMP express both estrogen and progesterone receptors and these hormones (i.e. estrogen, progesterone) may play a role in pathogenesis, especially in postmenopausal patients.

Many risk factors for EMP involve the body being exposed to high amounts of estrogen [5], as in administration of endogenous estrogen and exogenous estrogen. Tamoxifen (a uterine estrogen agonist used to treat breast cancer in peri- and postmenopausal women) has estrogenic effects on the uterus, and the incidence of endometrial polyps, hyperplasia and endometrial cancer in women taking Tamoxifen is higher than non-users [8]. Similarly, postmenopausal women on hormone replacement therapy (HRT) have been found to have a higher incidence

of endometrial polyps [8]. This may be due to the continuous stimulation of the endometrium by estrogen. Obesity is also associated with increased endogenous estrogen production via increased levels of aromatase which converts androgens in fat to estrogen [8]. Additionally, there is an increased risk of malignancy occurrence in patients with condition like hereditary cancer syndrome (Lynch syndrome or Cowden syndrome).

A definitive diagnosis of an endometrial polyp can be made based on histological diagnosis of a specimen, usually collected at time of polypectomy. Histologic evaluation can also exclude malignancy. The typical sonographic appearance of an endometrial polyp is a well-defined, homogeneous, polypoid lesion isoechoic to the endometrium with preservation of the endometrial-myometrial interface use of color flow or power Doppler to identify the central feeder vessel pathognomonic of an endometrial polyp may also be used. On hysteroscopy, polyps often have a beefy red appearance, and are soft and friable when touched with an instrument; a dilated gland can sometimes be visualized [5].

Goal

The goal of this article is to provide a comprehensive exploration on EMP in order to enhance our knowledge on the etiology, pathogenesis, and risk factors by investigating the age distribution at which EMP is diagnosed. Histologic evaluation can also exclude malignancy. A presumptive diagnosis of endometrial polyp can be made with a fair degree of confidence based on classic findings on imaging; however, malignancy cannot be excluded based on imaging alone.

Material and methods of the research

A retrospective analysis of medical records, histological reports, and microscopic slides of 80 patients diagnosed with Endometrial Polyps in 2023 was conducted. The processing and statistical analysis of the studied data was carried out in the program Microsoft Office Excel 2023. Based on this we evaluated 80 cases which were diagnosed with EMP by studying various diagnosis using the biopsy results that were obtained from the Microsoft Office Excel. We utilized materials from websites like PubMed where we got the definition and recently updated relevant information from UptToDate to make a detailed comprehensive review of the topic and inclusively used other article's resources with vast amount of information (see References below).

The results of the research and their discussion

Our results indicated a strong age dependent association of endometrial polyps. Out of 80 cases, only 27.5% (n=22) of the cases were women who were at the age of 51 or above 51 years and 72.5% (n=58) of cases were women under the age of 51. Rooting from this result, we estimated that 5% (n=4) of the cases were women between 21 to 30 years, 25% (n=20) were between 31 to 40 years, 38.7% (n=31) were between 41 to 50 years, 13.7% (n=11) were between 51 to 60 years, 13.7% (n=11) were between 61 to 70 years and 3.7% (n=3) were above 70 years old.

Table 1 – Histological sub-types of EPs and amount of case

Age group / EMP types	21–30 years	31–40 years	41–50 years	51–60 years	61–70 years
Basal type, hyperplasia variant	n = 1	n = 8	n = 12	n = 2	n = 1
Basal type, proliferative variant	n = 2	n = 1	n = 2	n = 2	n = 0
Basal type, indifferent variant	n = 0	n = 3	n = 3	n = 2	n = 3
Functional type, secretory variant	n = 1	n = 7	n = 12	n = 2	n = 0

According to table 1.0, 30% (n=24) of the cases has basal type hyperplasia variant, 8.7% (n=7) has basal type proliferative variant, 15% (n=12) have basal type indifferent variant EMPs and 27.5% (n=22) have functional type secretory variant EMP. 22 cases of functional type secretory variant EMP in table 1.0, on the outside of the polyp the endometrium is morphologically in early stage of secretory phase (n=9), early mid stage secretory phase (n=1), mid stage secretory phase (n=3), mid late stage secretory phase (n=2) and late stage secretory phase (n=3). Women who were diagnosed with functional type secretory variant of EMP has been also diagnosed with multiple simple uterine leiomyoma (n=1), cellular leiomyoma (n=1) and sub mucosal leiomyoma (n=1). Therefore, 3.7% (n=3) cases have EMP with Leiomyoma. However, from the 80 cases, 7.5% (n=6) of biopsies had mucus and 2.5% (n=2) of biopsies had red blood cells. Presence of mucus and RBCs in EMP can be common in cases where there is glandular hyperplasia. The endometrial lining of uterus is rich in blood vessels and EPs can lead to bleeding. And the glands within EMP produce mucus like secretions. Glandular hyperplasia is a condition in which there is an excessive growth of glandular cells in endometrial lining of uterus. This can sometimes occur in EMP. In accordance to the aforementioned cases, 7.5% (n=6) was diagnosed with glandular hyperplasia without atypia, 1.2% (n=2) was diagnosed with glandular hyperplasia with atypia, 3.7% (n=3) was diagnosed with dystrophy out of EMP as desquamated squamous epithelium. In EMP we can see several metaplasia such as tubal metaplasia, which is a benign change in endometrial tissue where the normal glandular cells are replaced by cells of fallopian tubes, and squamous metaplasia which is a benign change in endometrial tissue where glandular cells transform into squamous epithelial cells. Stemming from the 80 cases 5% (n=4) has tubal metaplasia and 1.2% (n=1) has endocervix foci with squamous metaplasia.

There are several other types of endometrial polyps. Of the 80 cases, 15% (n=12) are glandular cystic endometrial polyps which is characterized by the presence of cystic dilation of endometrial glands within the polyps and these are typically benign lesions. 3.7% (n=3) of cases are fibrocystic endometrial polyps which are combination of fibrous tissue and cystic spaces and these are usually benign. Adenomyomatous endometrial polyp is a specific type of endometrial polyp which is characterized by the presence of both endometrial glandular tissue and myometrial tissue within the polyp. 1.2% (n=1) has diagnosed with Adenomyomatous EMP. 5% (n=4) of the 80 cases has been diagnosed with cervical endometrial polyps which originated from the endometrium and extended into the cervical canal. These polyps are typically benign in nature and are more commonly found in uterus rather than the cervix. A very small fraction of polyps may show malignant transformation.

3.7% (n=3) has necrosis with diffuse purulent and/or mucopurulent inflammation (severe endocervicitis). Uterine polyps can be infected and leads to necrosis which is a serious condition that occurs when the cells of the polyp die due to lack of blood supply. The inflammatory process can spread to the endometrium and uterine muscles, which will eventually lead to uterine cancer.

Only 1.25% (n=1) out of the 80 cases was confirmed with complex atypical endometrial hyperplasia with area suspicious for malignant of type of endometrioid adenocarcinoma which is one of the most common cancer subtype.

Conclusion

Our retrospective analysis of 80 patients diagnosed with Endometrial Polyps in 2023 focuses on women between 45 to 55 years who are mostly affected by EMP, and it is up to 40% (n=32). The risk of having EMP increases with age, and especially women going through menopause are at high risk. The most common histological subtype of EMP is the basal type

hyperplasia variant, which is up to 30% (n=24). Several types of pathologies like hyperplasia (8.7%), metaplasia (6.2%), and dystrophy (3.7%) were detected. Although the majority of EMP are benign, a small proportion (1.2%) may become atypical and show malignant transformation. Thus, early diagnosis of EMP can prevent the risk of having serious conditions like necrosis and cancer and the overall chances of developing EMP complications.

LITERATURE

1. *Hileeto, D.* Age dependent association of endometrial polyps with increased risk of cancer involvement / D. Hileeto, O. Fadare, M. Martel, W. Zheng // World journal of surgical oncology. – 2005. – Vol. 3. – P. 1–6.

2. *Peterson, W. P.* Endometrial polyps / W. P. Peterson, E. R. Novak // Obstet. Gynecol. – 1956. – Vol. 8(1). – P. 40–49.

3. *Weschler, T.* Taking charge of your fertility: the definitive guide to natural birth control, pregnancy achievement, and reproductive health. / T. Weschler. – Random House, 2003. – 560 p.

4. *Barati, M.* Location, size and clinical symptoms of uterine polyps / M. Barati, S. Masihi, S. Ilkhan // Pak J Med Sci April-June. – 2010. – Vol. 26. – № 2. – P. 380–383.

5. *Stewart, E. A.* Endometrial polyps / A. S. Elizabeth, L. B. Robert, C. Alana // Up to Date. – 2020.

6. *Hamani, Y.* The clinical significance of small endometrial polyps / Y. Hamani, I. Eldar, H.Y. Sela // European Journal of Obstetrics & Gynecology and Reproductive Biology. – 2013. – Vol. 170. – № 2. – P. 497–500.

7. *Indraccolo, U.* The pathogenesis of endometrial polyps: a systematic semi-quantitative review / U. Indraccolo, R. Di Iorio, M.Matteo, G. Corona, P. Greco, S. R. Indraccolo // European Journal Of Gynaecological Oncology. – 2013. – Vol. 34. – № 1. – P. 5–22.

8. *Nijkang, N. P.* Endometrial polyps: Pathogenesis, sequelae and treatment / N. P. Nijkang, L. Anderson, M. Robert, M. Frank // SAGE open medicine. – 2019. – Vol. 7. – P. 2050312119848247.

УДК 618.14-006.363-018.1-036.2

D. M. Mathew, M. Nasir

Scientific supervisor: MD, PhD, G. V. Tishchenko

Educational Institution
"*Gomel State Medical University*"
Gomel, Republic of Belarus

INVESTIGATING THE PREVALANCE AND MORPHOLOGICAL TYPES OF UTERINE LEIYOMYOMAS

Introduction

Uterine fibroids or uterine leiomyomas (UL) are the most common form of tumours that affect the female reproductive system. Around 70% of women will have at least one fibroid during their lifetime, especially during their reproductive years [1]. In about half of UL cases women tend to experience pelvic pain, pregnancy issues (difficulty to conceive and miscarriages), frequent urination and excessive bleeding which all have a negative impact to a woman's quality of life [1, 2]. Therefore, it is the leading cause of hysterectomies globally [2].

ULs are benign, monoclonal, smooth muscle neoplasms that are usually derived from the myometrium of the uterus. They have a distinct appearance characterised by smooth muscle cells arranged in a whorled pattern surrounded by connective tissue. Connective tissue deposition is thought to be due to excessive production of extracellular matrix components such as collagen, proteoglycans, and fibronectin by myofibroblasts [3]. They can range in size from small nodules to large masses that can alter the shape of the uterus itself. ULs can be classified according to their location as well as according to their morphological types.

There are many factors that are thought to influence the formation of ULs such as race, age, BMI, diet, exposure to steroid hormones etc. The main factors that affect ULs tend to be exposure to oestrogen, race, and MED-12 mutations, about 70% of ULs have MED-12 mutations which affects gene expression [4]. Unfortunately, very little is known about the aetiology and pathogenesis of ULs despite its prevalence, the lack of knowledge and research