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.

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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

about ULs is due to the rarity of their malignant transformation [5]. ULs pose as a big problem in modern medicine today due to the symptoms that need to be treated and the contribution to the financial burden on healthcare systems [5, 6].

Goal

In this article we will highlight and discuss the prevalence of ULs and their morphological types by comparing data about UL incidences in women from Gomel and from England.

Material and methods of research

Data was gathered from 418 UL incidences in Gomel, Belarus during a one-year period (from January to December 2023) at Gomel Regional Clinical Hospital. This data was compared to 24,582 UL incidences over a one-year period (April 2022 to March 2023) from NHS England National Statistics [7].

The results of the research and their discussion

To begin with, using this data, we can discern that the mean age for the number of incidences of ULs in Gomel is 46.6 comparing to England, which similarly draws to a figure of 47.1. Furthermore, the highest number of incidences is observed in the 45–49 age group (shown in figure 1). From this we can confirm that ULs are more prevalent amongst premenopausal women in both cases. This leads us to presume that the growth of ULs is modulated by exposure to oestrogen and progesterone. The hormonal dependence of ULs is highlighted in this research as we can see the decline in the number of occurrences of ULs in Gomel between the age groups of 45–49 (28.7%) to 50–54 (16.5%). Similarly in England there is also a decline between 45–49 (24.8%) and 50–54(19.2%). From this, we can conclude that there is in fact an association between hormonal flux in a premenopausal woman and the development of ULs, especially confirmed by the dramatic decline in the number of incidences seen at the onset of menopause.

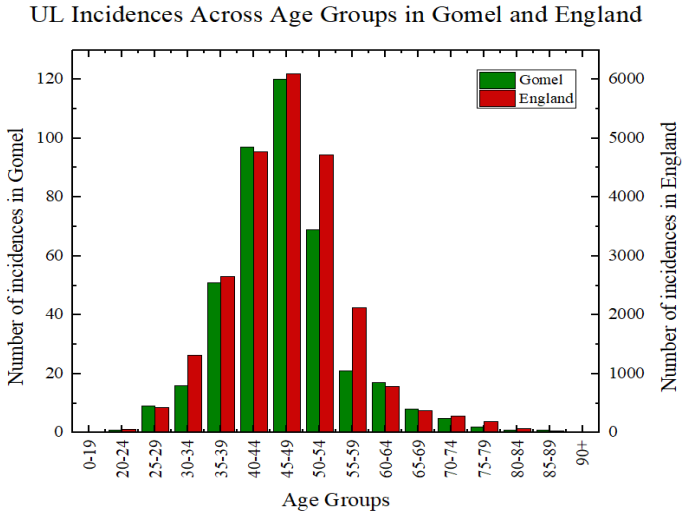

Figure 1 – UL Incidences Across Age Groups in Gomel and England [7]

Additionally, the information gathered from the women in Gomel also feature the morphological distinctions between ULs distinguishing them into different types based on morphology. According to morphology, we can differentiate into the following types seen in our data: NOS, hydropic, cellular, myxoid, symplastic, epithelioid and lipoleiomyoma. The number of occurrences varies with each (shown in table 1).

To begin with, most cases of ULs come under NOS (not otherwise specified), in this research we found a total of 325 women with Simple/NOS ULs. Hydropic (swollen) ULs can lead to

focal or total necrosis of cells, this type is thought to be caused by HMGA2 overexpression [8]. Recording only 6 incidents, hydropic ULs are not seen often. Similarly, symplastic ULs present only 3 cases. Symplastic ULs are characterised by multiple nuclei and dense chromatin with low mitotic activity, absence of cell necrosis but has cellular atypia. Rarer, there has been 1 single case of lipoleiomyoma recorded. They comprise of long intersecting bundles of bland, smooth muscle cells admixed with nests of mature adipocytes and fibrous tissue. They are primarily observed in obese perimenopausal and post-menopausal patients. Furthermore, more common cases of ULs are mainly observed in cellular ULs with a reported incidence of 45 cases. The major cellular phenotype of these ULs are heterogenous consisting of predominantly smooth muscle cells and fibroblasts. Following this, the second most common cases recorded amongst these types are myxoid ULs. In total, 28 cases of myxoid ULs are documented and are described as the dissolution of the collagenous fibrous layer and its replacement by glycosaminoglycans. Finally, the relatively rare epithelioid ULs presenting 10 cases total have a composition of round clear cells rather than typical spindle-shaped cells. The treatment of these ULs is roughly the same regardless of morphological type, however the likelihood of malignancy varies for each type.

Table 1 – Frequency of the Morphological Types of ULs

Morphological Type	ICD-O-Code	Frequency
Leiomyoma NOS	8890/0	325
Hydropic Leiomyoma	8890/0	6
Lipoleiomyoma	8890/0	1
Symplastic Leiomyoma	8893/0	3
Cellular Leiomyoma	8892/0	45
Myxoid Leiomyoma	8896/0	28
Epithelioid Leiomyoma	8891/0	10

Moreover, the degeneration changes associated with ULs can also be discussed. For example, there have been a reported 69 cases of hyalinosis on existing ULs. The process of UL degeneration begins when nearby blood vessels can no longer supply it, eventually leading to hyalinosis, which approximately constitutes 60% of all degeneration seen in ULs [9]. Ultimately, hyaline degeneration occurs when smooth muscle is replaced by fibrous connective tissue giving way to other types of degeneration that can only procced it, for example cystic degeneration, which is seen in about 4% of ULs [9]. Another example in description of degenerative changes would be the 28 cases of necrosis. A necrotic fibroid can be observed when a ruptured or blocked blood vessel causes the UL to necrotise from the action of degeneration. Degeneration and necrosis are often cyclical and to break the cycle, the elimination of fibroids is necessary. Aside this, Adenomyosis was found in 31 women. This is a condition whereby the endometrial tissue grows into the muscular wall of the uterus and commonly coexists with ULs.

Conclusion

To surmise, ULs are more prevalent in the age groups 45-49 according to our findings. This indicates premenopausal women are more at risk of developing ULs due to the prolonged exposure of steroid hormones such as oestrogen and progesterone. Morphological types of ULs range from common to rare, each with their own histological and cellular properties. Degenerative changes associated with ULs usually coexist and exacerbate existing ULs. ULs are the most common form of tumours in the female reproductive system, therefore more research behind their mechanisms and treatment is crucial in providing the necessary care for patients.

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COMPREHENSIVE ANALYSIS OF CERVICAL DYSPLASIAS: INSIGHTS FROM A RETROSPECTIVE STUDY OF 106 CASES DIAGNOSED IN 2023

Introduction

Cervical dysplasia, also known as cervical intraepithelial neoplasia, is a condition in which abnormal cells grow on the epithelial tissue of the cervix (the opening to the uterus attached to the top portion of the vagina). It is commonly considered a precancerous condition that leads to cervical cancer; however, with early detection and treatment, it can be prevented from becoming cancerous [1]. Based on how much epithelial tissue in the cervix has abnormal cells, they are classified as mild, moderate, and severe, otherwise known as CIN1 (abnormal cells affecting one-third of epithelium thickness), CIN2 (abnormal cells affecting one-third to two-thirds of epithelium), and CIN3 (abnormal cells affecting more than two-thirds of epithelium) [1]. Cervical dysplasia is more commonly affected in sexually active individuals (particularly from ages 20-35), AFAB (assigned female at birth) individuals, anyone with a cervix, and HPV patients. HPV patients are more prone to having severe dysplasia that eventually results in cervical cancer, as HPV is linked with cervical and uterine-related cancers. Hence, HPV is considered one of the primary causes of cervical dysplasia. Morphologically, HPV infection of cervical epithelial cells is characterized by the appearance of perinuclear, enlarged, and irregular nuclei showing evidence of mitosis, thus increasing the portion of cervical epithelium exhibiting dysplastic cells determining the grade of dysplasia (CIN1 – rare, CIN2 and CIN3 – more significant). Cervical dysplasia becomes cervical cancer when the abnormal cells invade the basement membrane [1].

Cervical cancer is the fourth most common cancer in women globally, with an estimated 604,000 cases and 342,000 deaths as of 2020 [2]. People who have severe cervical dysplasia,