Introduction

Adenomyosis is an unusual spread of benign tumors of the endometrial layer within the myometrium tissue besides myometrial hypertrophy. The term (Adenomyoma) describes a circumscribed mass formed by smooth muscle tissue of the uterus with the endometrium (1). Adenomyosis is caused by irregular growth and invasion of the endometrium to the myometrium layer; thus, continuity between the basal endometrium and the underlying Adenomyosis is sometimes seen in tissue parts (2). Endometrial glands with stroma are frequently found near major blood arteries. Adenomyosis occurs in all domestic types and commonly occurs in cows (3).

Macroscopically, the uterus sometimes appears slightly or enlarged, and its surface is smooth (4). In the cross-section, the mass appears sponge-shaped. The uterus wall is diffusely thickened with areas of focal hemorrhage and the coarsely trabecular (5,6). Microscopically, Adenomyosis is recognized whenever the endometrium tissue inside the myometrium is detected. This suggests that the diagnosis depends on the deep muscle layer finding ordinary, benign endometrial islands consisting of glands and stroma. Associated muscle hypertrophy is generally present (7).

This study aimed to investigate the incidence of Adenomyosis in slaughtered cows in the slaughterhouse of Basrah Governorate in southern Iraq, where the incidence of these cases is given as a result of excessive use of sex hormones by workers in the veterinary sector randomly, which reflects negatively on the health status of animals

Materials and Methods

The current study was conducted in the abattoir of Basrah Governorate in southern Iraq, 44 uteri from local cows (5-6 years old) were collected from March 2023 to April 2023. The macroscopic examination was conducted; and the uteri were fixed in formalin 10% and processed by routine methods. The sections were stained with Hematoxylin-Eosin in the Department of Pathology, College of Veterinary Medicine, University of Basrah.

Results

Out of 44 cases, Adenomyosis was noticed in 11 cases (25%) from the affected cows' reproductive systems. Grossly, the uterus was enlarged entirely, and its surface was smooth. When the lesion was cut in half, the surface looked spongy, and the uterine wall diffuse thickness, with coarsely trabecular and focal hemorrhage regions (Fig. 1). Microscopically, parts of the endometrial layer were found in the myometrium tissue (Fig 2). Deep inside the muscular layer, there were natural, benign endometrial islands made up of glands and stroma accompanied by muscle hypertrophy (Fig. 3 and 4). There was deformation in the shape of the endometrial glands in the advanced stages of the tumor that appeared in the myometrial and, presently, large numbers of blood vessels and muscle hypertrophy (Fig. 5 and 6).

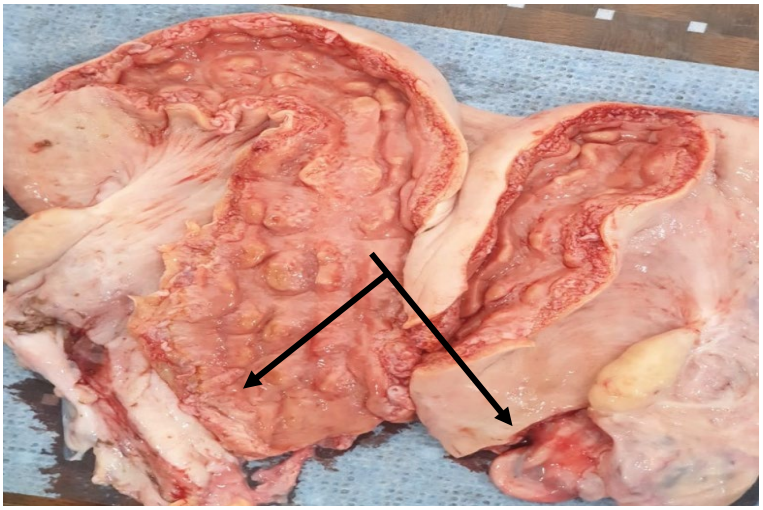


Figure (1): Macroscopic appearance of suspected uterine adenomyosis showing the uterine surface looked spongy, and the wall diffuse - thickness, trabeculae focal hemorrhage (black arrows).

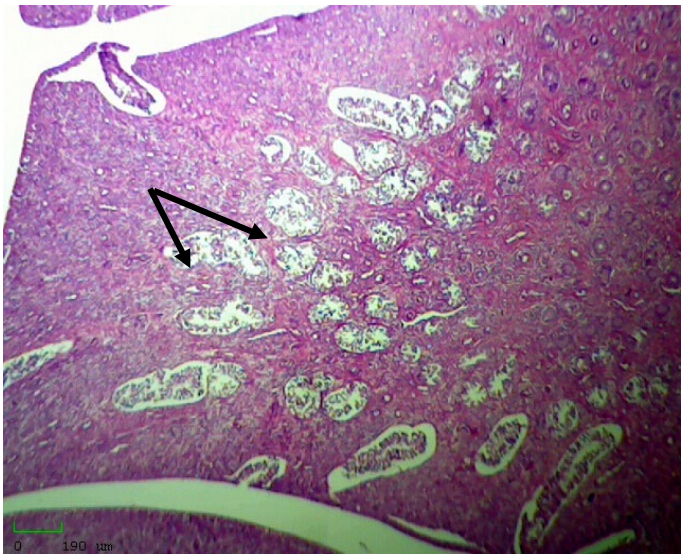
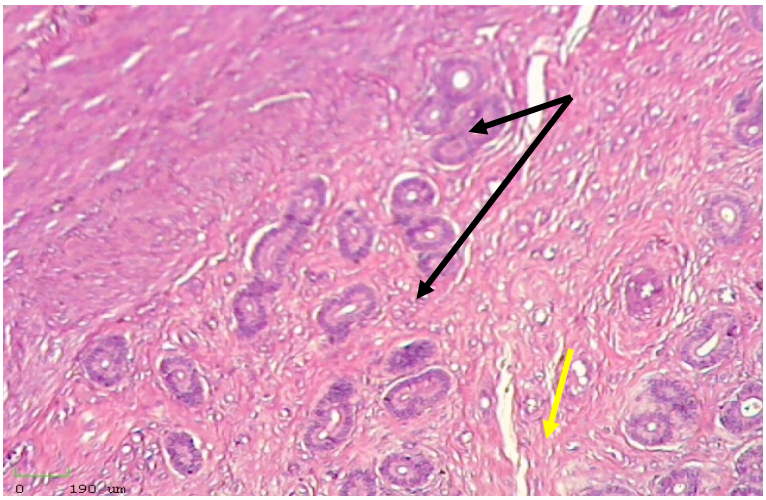


Figure (2): Histopathological section of uterine adenomyosis showing within the myometrium present endometrial tissue (black arrows) (H&E, 4x).



Fig(3): Histopathological section of uterine adenomyosis; showing benign endometrial islands made up of glands and stroma (black arrows) and new blood vessels (yellow arrow) (H&E, 10x).

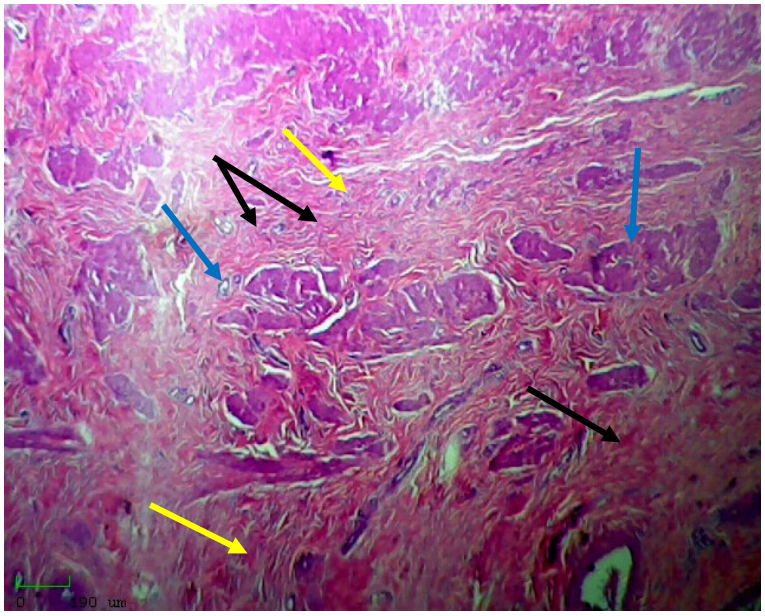


Figure (4): Histopathological section of uterine adenomyosis, showing advanced stages of adenomyosis. There was deformation in the shape of the endometrial glands (blue arrows), with muscle hypertrophy (black arrows), as well as present large numbers of blood vessels (yellow arrows) (H&E, 10x).

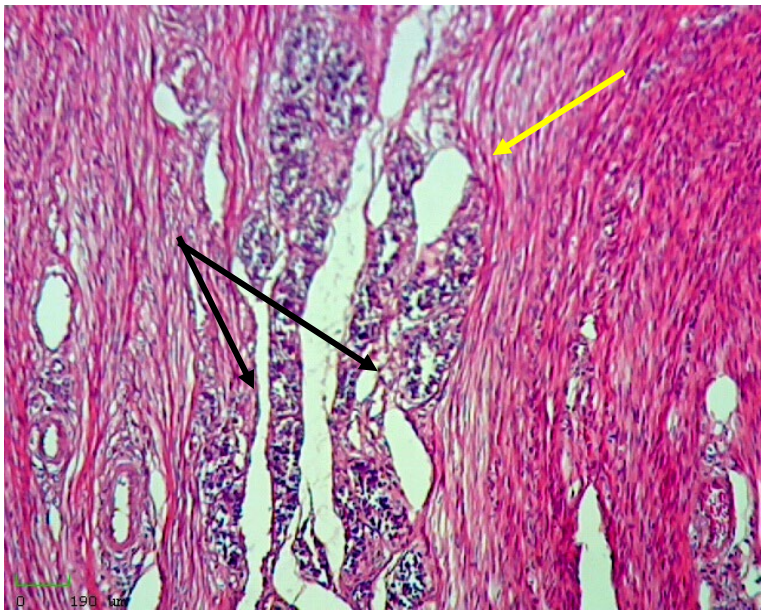


Figure (5): Histopathological section of uterine adenomyosis, showing visible uterine glands within the myometrial layer of the uterus (black arrows), accompanied by muscle hypertrophy (yellow arrow) (H&E, 40x).

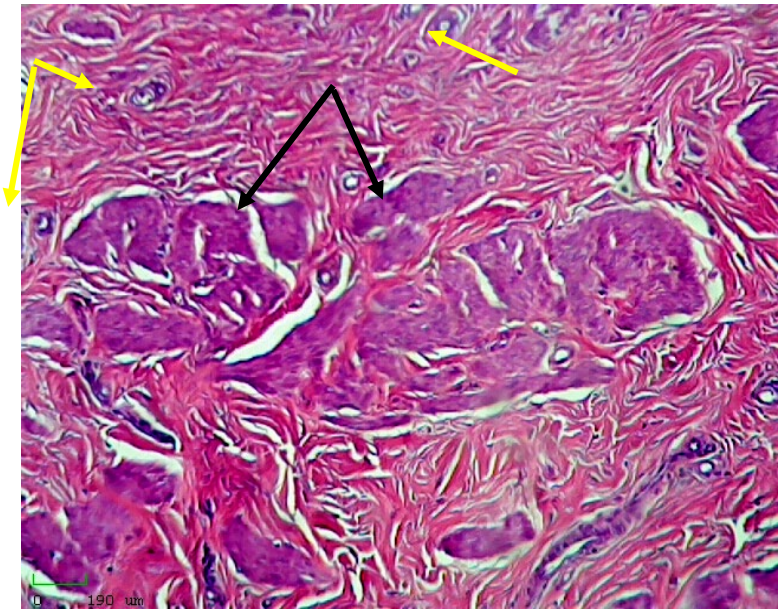


Figure (6): Histopathological section of uterine adenomyosis, showing advanced stages of adenomyosis. There was deformation in the shape of the endometrial glands and muscle hypertrophy (black arrows), as well as present large numbers of blood vessels (yellow arrows) (H&E, 40x).

Discussion

In this present study, out of 44 cases, adenomyosis was noticed in 11 cases (25 %) from affected cows' reproductive systems. The condition known as adenomyosis is characterized by the presence of endometrial glands and stroma within the myometrium, which is typically covered by hyperplasia of the smooth muscles (6).

In domestic animals like cows, adenomyosis is less well documented. However, it may contribute to a decline in reproductive efficiency. The exact cause of Adenomyosis is still uncertain, although it is most prevalent in cows older than five years (8,9). The evolution of this condition was clarified through multiple theories. A potential pathway includes breaking down the endometrial and myometrial barriers preceded by such traumas as abortion followed by aggressive endometrial hyperplasia and its prevalence in the myometrium (9,10). Another theory suggests that this condition may be due to the weakness of the uterine muscles or high uterine pressure (2). Furthermore, adenomyosis has been associated with various hormonal imbalances, which research has demonstrated to have a role in the disease's progression. Hyperprolactinemia or prolonged treatment with estrogenic compounds and extended progesterone administration may enhance this condition (7).

Macroscopically, the uterus may be slightly or markedly enlarged globally, and the surface is smooth; This finding is in agreement with (4), who also reported cut surface spongy appearances, and there was the diffuse thickness of the uterine wall with the presence of coarsely trabecular and areas of focal hemorrhage. Microscopically, it is characterized by the embedded endometrial tissue inside the myometrium as islands of benign tumor glands and the stroma deep within the muscular layer. These characteristic features is in agreement with (2,9), who also recorded the presence of muscle hypertrophy.

Conclusion: Although the true causes of adenomyosis are not yet known. However, indicators showed that the frequent use of hormones randomly in the treatment of infertility may be one of the reasons for the predisposition to the appearance of the disease, especially since the reproductive organs of the cows that studied was treated with hormone treatments to increase reproductive fertility.

Conflict of interest: All authors declare that there is no conflict of interest.

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التحري عن العضال الغدي في الأبقار في محافظة البصرة

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الخلاصة

أجريت هذه الدراسة في مسلخ محافظة البصرة جنوب العراق، حيث تم جمع 44 رحم من أبقار محلية (عمرها 5-6 سنوات) للفترة من آذار 2023 إلى نيسان 2023. وأظهرت النتائج 11 (25%) حالة إصابة بالعضال الغدي من المجموع الكلي البالغ (44) من حالات الاصابة للجهاز التناسلي للأبقار .في الفحص المجهري، يبدو الرحم منتفخا قليلا. وفي الوقت نفسه، كشف الفحص المجهري عن وجود غدد في طبقة عضلات الرحم. وقد لوحظت طبقة بطانة الرحم جزئيا في عضل الرحم تحت المجهر. تم العثور على جزر بطانة الرحم الطبيعية الحميدة المكونة من الغدد والسدى في عمق طبقة العضلات. بالإضافة إلى ذلك، حدوث تضخم عضلي. ظهور عضل الرحم، والعديد من الأوعية الدموية وتضخم العضلات في المراحل الأخيرة من الورم، مما تسبب في تغيير في بنية غدد بطانة الرحم.

الكلمات المفتاحية: العضال الغدي، الرحم، الابقار.