



Mammary Adenocarcinoma Associated with Uterine Leiomyoma and Osseous Metaplasia in New Zealand Rabbit-A case Report

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A B S T R A C T

A nine-year-old female indoor New Zealand breed pet rabbit was presented to the Department of Surgery and Obstetrics with a prominent mass in the left fourth mammary gland. The animal was not spayed and was not exposed to the breeding cycle. The animal was initially admitted for surgical excision of the mass. The patient then underwent an elective ovariohysterectomy, which identified another lesion within the ovaries and uterus. The pet rabbit underwent two successful surgeries to remove lesions. The postoperative recovery period was uneventful, and the animal remained in good health for approximately six months. After this period, the animal developed signs of acute respiratory distress, which resulted in its death within a short time from the onset of symptoms. The excised mammary mass, ovaries, and uterine tissue, along with post-mortem samples from the lungs, kidneys, and liver that were collected after the pet's death, were preserved in cold physiological saline and sent for histopathological evaluation. The macro examination during the mastectomy revealed a 3 × 2 × 2 cm dark-red, firm, multilobulated subcutaneous mass arising from the left fourth abdominal mammary gland. On sectioning, the mass showed grey-tan multinodular solid tissue supported by fibrous stroma. The microscopic examination revealed a primary invasive mammary adenocarcinoma (Grade II), with metastases (Stage IV) in most internal organs, such as the lung, kidney, and liver. Concurrently, uterine leiomyoma, osseous metaplasia of the uterine wall with cystic endometrial hyperplasia have also been reported. This report describes a rare coexistence of mammary adenocarcinoma and uterine leiomyoma and osseous metaplasia in a rabbit. It emphasizes the importance of the full assessment of the reproductive system in aged, female rabbits that are not spayed with mammary gland tumours.

Keywords: adenocarcinoma, leiomyoma, osseous metaplasia, mammary gland, uterine, tumours, elderly rabbit

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INTRODUCTION

Rabbits raised for meat, fur, or experimental purposes typically have a shortened lifespan, in contrast to pet rabbits, which are generally allowed to age

naturally and reach their full physiological life expectancy. Domestic rabbits can live 8–12 years, especially when kept as pets with good care (1,2). As the pet rabbit population ages, the number of incidences of neoplastic disorders has increased, leading to a growing demand for advanced

medical care, driving significant changes in veterinary practices for this species (3).

Mammary gland tumours are relatively common in aged, intact female rabbits and are frequently associated with hormonal imbalances or concurrent uterine diseases (4,5). Adenocarcinoma is the most frequently reported malignant neoplasm of the rabbit mammary gland (6). In contrast, osseous metaplasia within the uterus is an exceptionally rare finding in veterinary medicine and has seldom been documented in rabbits (1). A comprehensive retrospective study of 1,928 pet rabbits undergoing ovariohysterectomy reported common findings such as endometrial adenocarcinoma and hyperplasia, but no instances of osseous metaplasia in the uterus were reported (7). The co-existence of a mammary adenocarcinoma with osseous uterine metaplasia in the same animal is extremely uncommon. However, while uterine osseous metaplasia has been documented in human medicine, it remains rare and usually follows abortion or retained foetal tissue. There is no evidence to support the occurrence of uterine osseous metaplasia together with Mammary gland carcinoma in animals (8).

This report aims to document this rare association, describe its clinical and histopathological features, and discuss potential pathogenetic mechanisms linking the lesions found in the patient.

CASE DESCRIPTION

A nine-year-old female New Zealand breed rabbit, raised exclusively as an indoor pet, the animal was not spayed and was not exposed to the breeding cycle of pregnancy, parturition, and lactation, the animal was presented to the Department of Surgery and Obstetrics, College of Veterinary Medicine, University of Baghdad, with a prominent, firm, palpable mass measuring approximately (3×2×2 cm), located in the fourth left mammary gland. The owner reported that they did not notice the mass early because it was hidden under the thick fur of the abdomen. However, they confirmed that the mass had gradually increased in size over several weeks. Clinical examination revealed a well-defined, non-ulcerated mass without apparent pain on palpation. The animal was otherwise bright and alert, with normal appetite and activity levels (Figure 1).



Figure 1. A nine-year-old non-spayed female rabbit, with a prominent, firm, palpable mass measuring approximately (3×2×2 cm), located in the fourth left mammary gland

After obtaining written permission from the owner and completing the ethics certificate for the Research Ethics Committee (P-G/2937) on 26-11-2025, anaesthesia and analgesia were managed utilizing a multimodal protocol tailored to rabbit physiology and the geriatric status of the patient. Preemptive analgesia was provided using Flunixin Meglumine 5% (UVEFLUXIN)[®] (Uvedco, United Veterinary Drugs Industrial Co. Ltd., Jordan), administered intramuscularly at a dose of 1.5 mg/kg body weight. Ten minutes later, anesthesia was induced using a combination of medetomidine at 0.1 mg/kg BWT — representing a specific, highly selective alpha-2 adrenoceptor agonist — and xylazine HCl (Xilazine 2%, 20 mg/mL, Micro Pet's, Uruguay) at a dose of 2 mg/kg BWT, together with ketamine HCl (KETAMIN 10% INJ, 100 mg/mL, Dutch Farm International BV-Netherlands) at a dose of 20 mg/kg BWT. This preemptive, patient-tailored multimodal approach was selected to ensure balanced sedation, analgesia, and safety for the geriatric patient.

First, the rabbit was subjected to a mastectomy surgery to remove the whole mass. The created wound was closed by several simple interrupted stitches. The excised mammary gland was then kept in cold PBS and sent to the histopathological lab to prepare H&E tissue sections and do histopathological examination (9).

Postoperatively, the rabbit was treated with ceftriaxone as a post-surgery prophylactic antibiotic at a dose of 40 mg/kg body weight intramuscularly for five consecutive days.

Gross examination during mastectomy surgery showed a single subcutaneous dark-red firm multilobulated mass (3×2×2 cm) attached to the underlying tissue raised from the 4th left abdominal mammary gland. Cut section revealed grey-tan multinodular solid growth supported by fibrous connective tissue (Figure 2A). Modified semiquantitative method of Elston and Ellis (1991) (10), has been used to identify the grading value of the neoplastic cells.

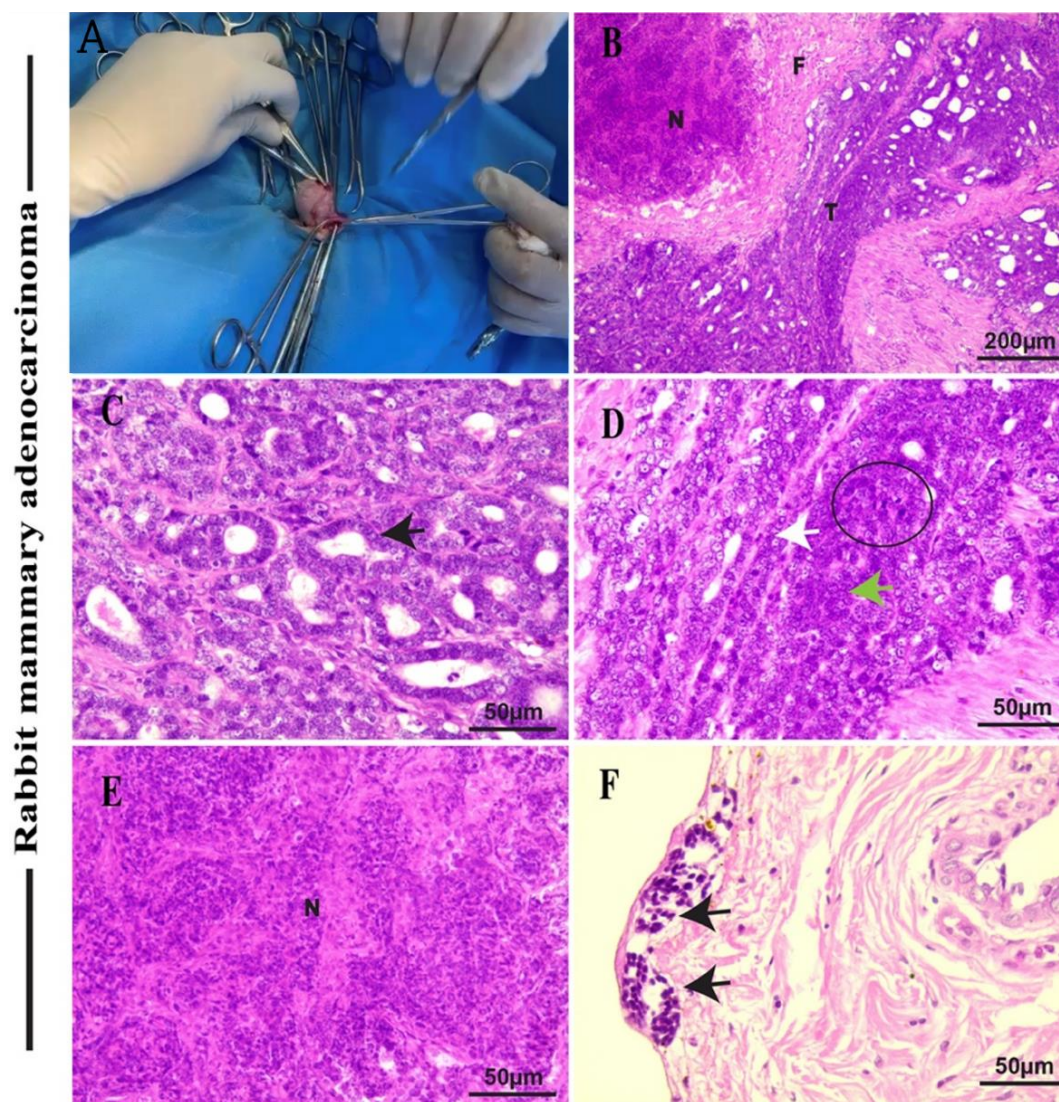


Figure 2. Invasive mammary adenocarcinoma; Rabbit. [A]. Gross examination demonstrated a single subcutaneous dark-red firm multilobulated mass (3x2x2 cm) attached to the underlying tissue raised from the left fourth abdominal mammary gland. Cut section revealed grey-tan multinodular solid growth supported by fibrous connective tissue. (B) Histological examination demonstrated encapsulated, well demarcated neoplastic epithelial cells that arranged as densely cellular cancerous cells that formed acinar (score 2) (black arrow) (C), tubules (white arrow), or solid (green arrow) (D) cellular regions supported by a variably dense fibrovascular scirrhous (F) stroma with diffuse necrotic areas (N) (B, E). Neoplastic epithelial cells had distinct cell borders with a moderate amount of eosinophilic cytoplasm, round to oval vesicular nuclei with prominent nucleoli. Anisocytosis and anisokaryosis (score 3) were marked with frequent mitotic figures (black circle) (D). Tubules and acini were lined by a single layer of cuboidal to columnar neoplastic epithelial cells. In other regions, there was focally extensive coagulative necrosis within the centre of the tumour mass with eosinophilic cellular and karyorrhectic debris. (F) On the other hand, some sections showed neoplastic cells were multifocally infiltrated the dense collagenous stroma and reached to lymphatic vessels (black arrows). H&E stain

Results of histological examination (**Figure 2B**) demonstrated expansion of the subcutaneous tissue and dermis; and the overlying adnexa was compressed, with an elevation of the overlying epidermis as a result of encapsulated, well demarcated neoplastic epithelial cells that were arranged as densely packed cancerous cells forming an acinar (score 2) (**Figure 2C**), tubules, or solidly (**Figure 2D**) cellular regions supported by a variably dense fibrovascular scirrhous stroma with diffuse necrotic areas (**Figure 2B and E**). Neoplastic epithelial cells had distinct cell borders with a moderate amount of eosinophilic

cytoplasm, round to oval vesicular nuclei with prominent nucleoli. Anisocytosis and anisokaryosis (score 3) were marked with frequent mitotic figures (> 20) in 10HPF (**Figure 2D**). Tubules and acini were lined by a single layer of cuboidal to columnar neoplastic epithelial cells. In other regions, there was focally extensive coagulative necrosis within the center of the tumor mass with eosinophilic cellular and karyorrhectic debris. On the other hand, some areas showed neoplastic cells which were unencapsulated and multifocally infiltrated by a dense collagenous stroma and arranged in sheet or cord like appearance as well as reaching the lymphatic vessels (**Figure 2F**). Together, these

cellular features indicate an intermediate-grade invasive mammary adenocarcinoma (Grade II).

Two weeks later, an elective ovariectomy was carried out as a precautionary measure following the mastectomy. The patient was anaesthetized using the same multimodal protocol employed during the initial mastectomy to ensure consistent physiological stability. Intraoperative examination revealed that the uterine body had developed into a sac-like structure containing a substantial volume of fluid. This segment of the uterus demonstrated contractile activity, characterized by rhythmic, involuntary contractions that resulted in periodic emptying and refilling. In contrast, other parts of the uterus (both uterine horns) appeared irregular and firm, with focal

areas of mineralization suggestive of osseous tissue. Both ovaries and the entire uterus were removed, kept in cold PBS, and sent for histopathological examination. The abdominal wall was closed using absorbable sutures in a simple continuous pattern, and the skin was subsequently closed with absorbable sutures employing a subcuticular technique. Postoperative care included routine monitoring and administration of ceftriaxone as a prophylactic antibiotic at a dosage of 40 mg/kg body weight intramuscularly for five consecutive days.

Ovarian H&E tissue sections demonstrated a large mature follicle with corpus luteum, black asterisks (**Figure 3A, B**) and areas of hemorrhages and a few ovarian follicles (**Figure 3C, D**).

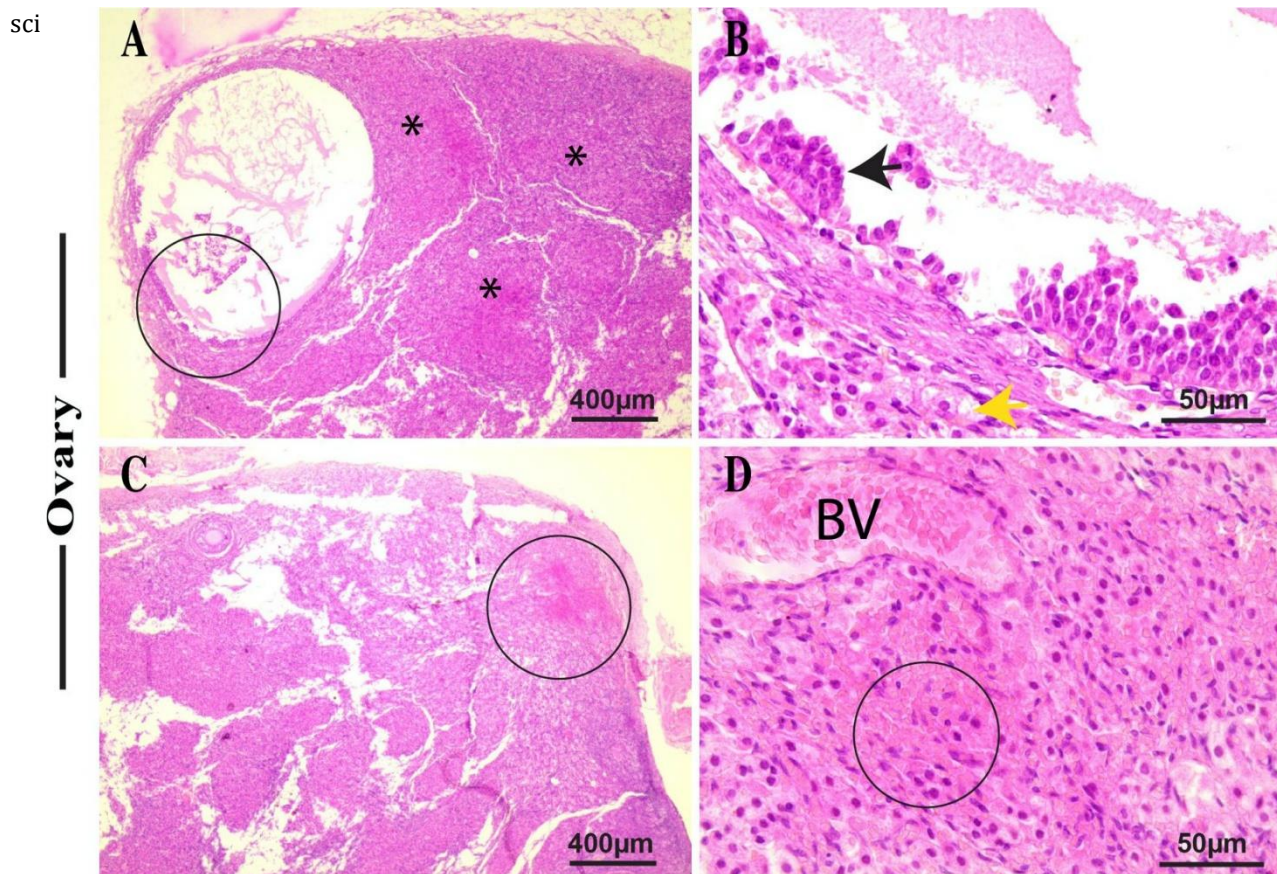


Figure 3. Ovary of the rabbit. (A) Ovarian tissue section demonstrated a large mature follicle (black circle) with corpus luteum (black asterisks). (B) Granulosa cells (black arrow) and theca interna (yellow arrow) of a mature follicle. (C, D) Areas of haemorrhage (black circle) and very few ovarian follicles. BV: blood vessel. H&E stain

Grossly, the uterus was markedly enlarged with multifocal firm areas as well as a congested and corrugated surface with accumulation of a large quantity of intrauterine gelatinous fluid (**Figure 4A**). Histologically, H&E-tissue sections revealed marked thickening of endometrium because of hyperplastic, expanded, and tortuous endometrial glands (**Figure 4B, C, D, E**). The hyperplasia of the glandular epithelium lining with papillary projections was marked with variable amounts of cellular debris inside glandular lumens (**Figure 4D, E**). Interestingly, smooth muscle tumour cells were focally

diffused, variably sized capsulated well-demarcated moderately lobulated, spindle cells. These cells are arranged as long interlacing streams of collagen bundles, leiomyoma (**Figure 4F, G**). Tumor cells have indistinct cell borders, amphophilic cytoplasm with rounded to elongated nuclei, moderate anisocytosis and anisokaryosis. Moreover, multifocally, variably sized, fragmented/anastomosing trabecular bones were seen (osseous endometrial metaplasia) that formed spaces containing bone marrow. Trabeculae were lined by cuboidal active osteoblasts, embedded osteocytes, and osteoclasts (**Figure 4H**).

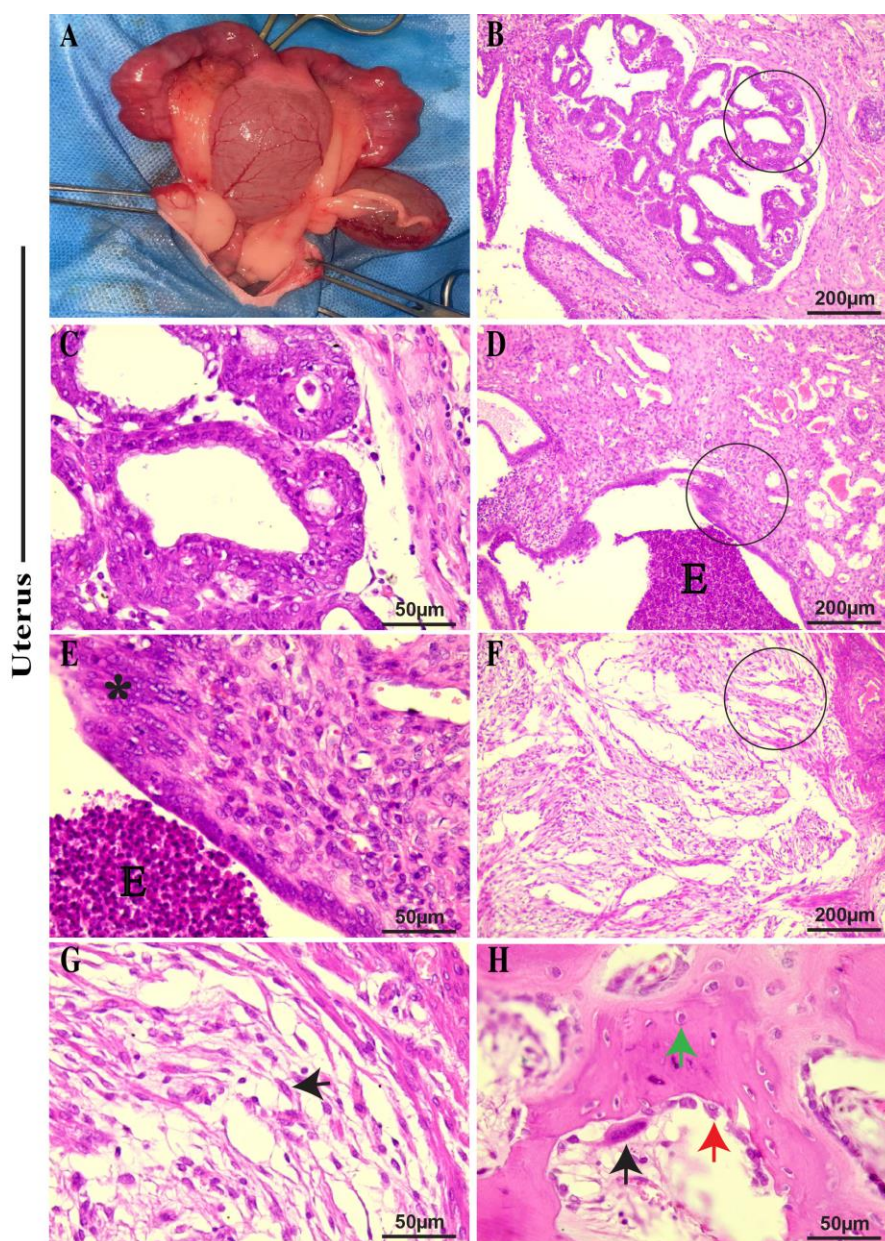


Figure 4. Uterus of the rabbit. (A) Grossly, the uterus was markedly enlarged with multifocal firm areas as well as a congested and corrugated surface with an accumulation of a large quantity of intrauterine gelatinous fluid. (B, C, D, E) Histologically, H&E sections revealed marked thickening of the endometrium as a result of hyperplastic, expanded, and tortuous endometrial glands (black circle). (D, E) Hyperplasia of the glandular epithelium (black asterisk) lining with papillary projections and variable amounts of cellular exudate inside glandular lumens (E). (F, G) Multifocal variably sized capsulated well-demarcated moderately lobulated spindle cells were arranged as long interlacing streams of collagen bundles, leiomyoma. Tumour cells have indistinct cell borders, amphophilic cytoplasm with rounded to elongated nuclei, moderate anisocytosis and anisokaryosis (black arrow). (H) Multifocally, variably sized fragmented/anastomosing trabecular bones were seen (osseous endometrial metaplasia) that formed spaces containing bone marrow. Trabeculae were lined by cuboidal active osteoblasts (red arrow), osteocytes (green arrow), and osteoclasts (black arrow). H&E stain

The recovery was uneventful, and the rabbit remained in good health for approximately six months. Subsequently, the patient developed respiratory distress, exhibiting dyspnoea and lethargy consistent with possible pulmonary metastasis. The condition deteriorated rapidly, and the rabbit died a few days after the onset of these signs. Unfortunately, no thoracic imaging was performed before death to confirm the suspected metastasis. Summary of

clinical progression, interventions, and outcomes are mentioned in **Table 1**.

Within few days after respiratory symptoms (Six months post-surgeries), the rabbit died, and the animal was submitted for post-mortem evaluation.

Gross findings demonstrated marked multifocal to coalescing, variably sized firm, grey-tan nodules that were distributed affecting both lungs as well as metastasising to

the liver and kidney parenchyma (**Figure 5A**). Microscopic analysis demonstrated a Grade II and Stage IV invasive mammary adenocarcinoma that arranged as described in **Figure 2C, D** and these neoplastic cells invaded and effaced

lung tissue (100% entirely tissue replaced), liver (70% of hepatic parenchyma replaced), as well as left kidney parenchymal tissues (50% of renal parenchyma replaced) (**Figure 5B**).

Table 1. Summary of clinical progression, interventions, and postmortem investigation outcomes

Stage	Findings	Intervention	Outcome
Presentation	Mammary mass (3×2×2 cm)	Mamnectomy	Uneventful recovery
2 weeks later	Uterine enlargement, osseous metaplasia, leiomyoma	Ovariohysterectomy	Good recovery
6 months later	Respiratory distress, pulmonary metastasis is clinically suspected	Supportive care, unfortunately there is no thoracic imaging prior to death	Death
After death	The animal was submitted for post-mortem evaluation	Gross and histological examination	Metastasis to lung, liver, and kidney

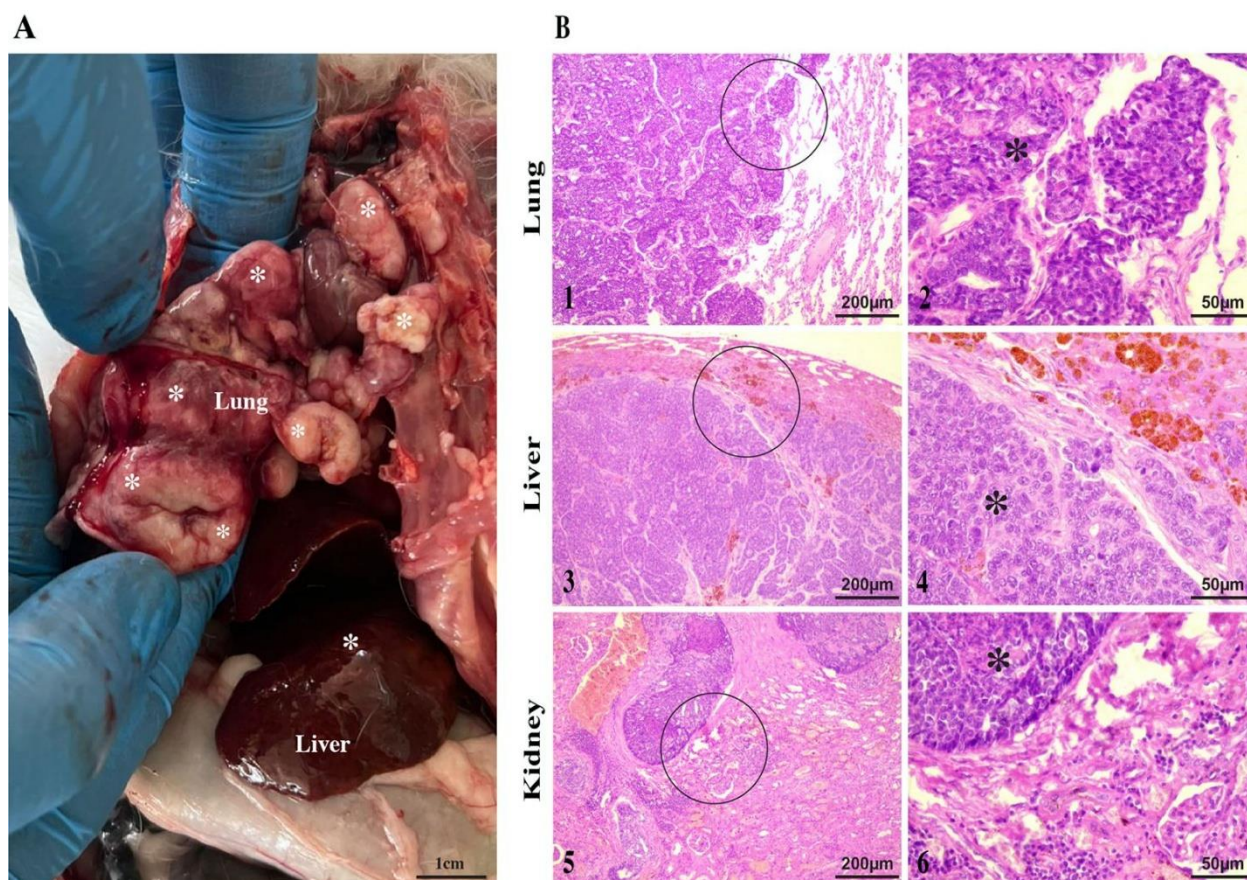


Figure 5. Thoracic and abdominal cavities; rabbit. (A) Gross findings demonstrated marked multifocal to coalescing, variably sized firm, grey-tan nodules (white asterisk) were distributed and entirely effaced both lungs as well as metastasized to the liver parenchyma. (B) Histological analysis demonstrated an invasive mammary adenocarcinoma that arranged as acinar, tubules, or solidly cellular neoplastic cells (black asterisks) invaded and effaced lung tissue (B 1,2) (100% entirely tissue replaced), liver (B 3, 4) 70% of hepatic parenchyma replaced as well as left kidney parenchymal tissues (B 5, 6) (50% of renal parenchyma replaced). H&E stain

DISCUSSION

This study revealed the occurrence of two different types of tumours, mammary invasive adenocarcinoma (epithelial type) as well as uterine leiomyoma (mesenchymal type) with osseous metaplasia in a pet rabbit. Pathomorphological examination, especially histological analysis, confirmed malignant epithelial proliferation in the mammary gland and benign smooth

muscle neoplasm in the uterus, alongside metaplastic bone formation within the endometrium.

Although several studies have described tumours in rabbits, a standardized rabbit classification for invasive carcinoma is not available. Prognostic factors are unidentified, and the

surgical excision remains the only treatment of choice (4). These tumour types are thought to be associated with hormonal influences, particularly prolonged exposure to

estrogen and progesterone, which may have contributed to the development of the neoplasm, which can also predispose rabbits to other uterine pathologies such as endometrial hyperplasia or adenocarcinoma. This is why spaying (ovariohysterectomy) is generally recommended for female rabbits not intended for breeding, as it significantly reduces the risk of both uterine and mammary tumours (10).

In an earlier study conducted by Greene (1939), two ways for the development of malignant mammary tumours were described. Carcinomas, which are the prevalent type, arise from simple cysts, benign papillary tumours, or non-invasive cancer to invasive carcinomas. The other form, mammary carcinomas, develops without pre-existing cystic lesions (11), which was recorded in this study.

In a study by Baum and Hewicker-Trautwein (2015), who classified mammary tumour's in pet rabbits using a modified WHO histological system originally designed for cats and dogs (12). It was reported that mammary tumour's account for approximately 20% of pet rabbit samples submitted for histopathological evaluation. In pet rabbits, the increasing incidence of mammary tumour's is believed to be associated with hormonal influences, reproductive status, and age-related factors. In the presented case here, the tumour is linked to the same factors: hormonal, as the animal was not spayed, which resulted in prolonged exposure to estrogen and progesterone; reproductive status, since the animal had not experienced breeding events such as pregnancy, parturition, or lactation; in addition to the old age, as the animal was elderly.

Tara Harrison (2022) reported that uterine adenocarcinoma accounts for roughly one-third of rabbit cases presenting with vaginal discharge (18 out of 54), whereas endometrial hyperplasia accounts for approximately 44% (24 out of 54) of uterine lesions. The average age at diagnosis was 4.5 years for rabbits with endometrial hyperplasia and 6.1 years for those with adenocarcinoma (13), which aligns with the occurrence in our case involving a 9-year-old rabbit. In addition, approximately 24% of rabbits diagnosed with mammary adenocarcinoma also presented with concurrent uterine disease.

On the other hand, rabbits are prone to developing a variety of lesions within the reproductive tract, with uterine adenocarcinoma being the most common neoplasm. This malignancy is characterized by its high metastatic potential, frequently spreading to distant organs such as the lungs, liver, brain, and occasionally the bone marrow (14,15). This pattern of metastasis was observed in this case.

In a reported case series, uterine adenocarcinoma was the predominant lesion among 135 uterine masses, accounting for 84 cases (62%). Leiomyoma was identified in 13 cases (10%), leiomyosarcoma in 8 cases (6%), and a single case involved a teratoma. Ten rabbits exhibited concurrent uterine adenocarcinoma along with either leiomyoma or leiomyosarcoma. Leiomyoma is considered one of the most common spontaneous benign tumours in pet rabbits, and it is diagnosed simultaneously with

adenocarcinoma as well as cystic endometrial hyperplasia (3). In the current case, light microscopic examination revealed mesenchymal elements with well-differentiated spindle smooth muscle fibers accompanied by cystic endometrial hyperplasia. As proliferation of two different elements, mesenchymal and epithelial cells, within the uterus tissue, especially glandular structures, in a pet rabbit diagnosed with invasive mammary adenocarcinoma may be misdiagnosed as metastatic mammary neoplastic cells to the uterine tissue, although the latter was not either a mammary tissue nor uterine adenoma, but uterine gland hyperplasia. A prospective study has been confirmed that among 116 domestic rabbits with neoplastic (22 cases) and non-neoplastic uterine (96 cases) disorder, 26 % and 77% rabbits were diagnosed with cystic (16). Although the pathogenesis of this condition remains unknown, however, several studies suggested it is a hormone-dependent disease that is usually associated with elevation in the progesterone level that occurs in most domestic animals, such as rabbits, and the histopathological evaluation remains the only confirmative approach to diagnose this condition (17).

Additionally, rabbit ovaries contain numerous polygonal, finely vacuolated eosinophilic interstitial cells, which may be easily misinterpreted as luteoma (3). In most cases, rabbits diagnosed with adenocarcinoma were euthanized due to declining health or metastatic disease. Among those treated surgically via ovariohysterectomy, 8 out of 29 (28%) survived for 22 months or longer postoperatively (14). In the present case, the advanced age of the patient combined with the owner's delay or reluctance to pursue ovariectomy resulted in late-stage diagnosis, leading to a poor prognosis and death within six months—significantly shorter than survival times reported in the literature.

The most prevalent uterine neoplasm among rabbits aged 5–6 years was adenocarcinoma, comprising approximately 79.1% of uterine masses. Although ovarian tumours are relatively uncommon, various ovarian abnormalities have been observed, including follicular cysts, cystic rete ovarii, extensive necrosis with dystrophic calcification, and rare occurrences of ovarian adenoma (14).

Osseous metaplasia of the uterus is a rare pathological condition characterized by the transformation of endometrial stromal or connective tissue into bone. Although its exact cause remains uncertain, several hypotheses have been proposed, including chronic inflammatory processes, degenerative changes, and hormonal imbalances that may trigger abnormal differentiation of mesenchymal cells (18,19). In the presented clinical case, long-standing uterine alterations combined with age-related hormonal shifts are likely contributing factors.

Despite uterine disorders such as endometrial hyperplasia, adenocarcinoma, or metaplastic changes commonly coexisting with mammary gland tumours in intact females due to shared hormonal stimulation from estrogen and progesterone (20). However, osseous

metaplasia of the uterus is a rare pathological condition and is not typically associated with mammary gland tumours (19).

Many studies propose that mesenchymal stromal cells undergo osseous metaplasia due to chronic inflammation, dystrophic calcification, retained embryonic/foetal tissue, or hormonal influences like unopposed estrogen. The widely accepted hypothesis is that endometrial stromal cells transform into osteoblast-like cells, producing bone tissue (21). This kind of cancer, most commonly reported in humans, occurs in reproductive-aged individuals with prior abortions (spontaneous or induced), chronic endometritis, or other uterine trauma (22).

In this scenario, citing chronic uterine changes and age-related hormonal alterations as contributing factors is valid and consistent with literature that attributes hormonal imbalance or repetitive irritation to the metaplastic process (23).

The later onset of respiratory distress and subsequent death suggested possible pulmonary metastasis, a common route for dissemination of mammary adenocarcinoma, aligning with the literature (24,25). This study primarily has limitation which is absence of immunohistochemistry technique and other special stains due to lack of resources/funding, however, H&E tissue sections and the cellular morphology of neoplastic cells with metastatic behavior to other organs provided sufficient evidence that this tumour is Grade II- Stage IV classification.

This case underscores the importance of comprehensive diagnostic evaluation, including histopathological examination, of all excised reproductive, mammary and internal tissues in rabbits. Furthermore, early spaying is strongly advised for pet rabbits and other small mammals, such as rats, mice, hamsters, and guinea pigs, which have recently gained popularity as companion animals, to reduce the risk of hormone-dependent neoplastic and metaplastic conditions (6,26).

This report documents a rare coexistence of mammary adenocarcinoma and osseous uterine metaplasia with uterine leiomyoma in a pet rabbit. The findings highlight the potential link between chronic hormonal stimulation and the development of concurrent neoplastic and metaplastic lesions in aged, intact female rabbits. Comprehensive surgical and histopathological evaluation is crucial for accurate diagnosis and management of such complex cases.

Exotic small mammals (or zoological companion animals) have become common pets. Having a basic understanding of their reproduction and reproductive anatomy is essential to maintain their health and quality of life. Common conditions that they develop should be understood, which will enable the veterinary practitioner to provide adequate medical therapy and treatments to these animals and to continue to improve their quality of life.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

All authors contributed equally to this work according to their respective fields of specialization. The clinical and surgical management, histopathological evaluation, data analysis, and manuscript preparation were collaboratively executed by the research team. All authors reviewed and approved the final manuscript.

ARTIFICIAL INTELLIGENT DECLARATION

The authors declare that they are responsible for the accuracy and integrity of all content of the manuscript, including part generated by AI, and it is not used as a co-author.

EDITORIAL TRANSPARENCY

Yvonne Reinwald serves as a member of the editorial board for The Iraqi Journal of Veterinary Medicine. Despite this role, the peer review process and the final publication decision were made independently and impartially, ensuring no influence from the author's editorial position.

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سرطان الثدي الغدي المصحوب بورم عضلي أملس وحؤول عظمي رحمي في أرنبية: تقرير حالة

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الخلاصة

سُجِّلَتْ في فرع الجراحة والتوليد حالة لأرنبية أليفه (تربية منزلية) تبلغ من العمر تسع سنوات، تعاني من كتلة بارزة في الغدة الثديية الرابعة اليسرى. أُدخل الحيوان في البداية لإجراء استئصال جراحي للكتلة، وخضع لاحقاً لعملية اختبارية لاستئصال المبيض والرحم؛ حيث رُصِدَتْ أفة أخرى داخل المبيضين والرحم. تكللت العمليتان الجراحتان بالنجاح واستؤصلت الأفات، ومرت مرحلة التعافي بعد الجراحة دون أي مضاعفات، وبقي الحيوان بصحة جيدة لمدة ستة أشهر تقريباً. بعد هذه الفترة، ظهرت على الحيوان علامات ضيق تنفسي حاد، مما أدى إلى نفوقه خلال فترة زمنية قصيرة من بداية الأعراض التنفسية. جُمِعَتْ عينات من كتلة الثدي المستأصلة، والمبيضين، وأنسجة الرحم، بالإضافة إلى عينات تشريحية من الرئة والكلية والكبد بعد النفوق، وحفظت في محلول ملحي فسيولوجي بارد، وأُرْسِلَتْ للتقييم النسيجي المرضي. أظهر الفحص المجهرى إصابة الحيوان بسرطان الثدي الغدي، والورم العضلي الأملس الرحمي، والحؤول العظمي في جدار الرحم، مع وجود نقائل سرطانية في معظم الأعضاء الداخلية كالرئتين والكليتين والكبد. يستعرض هذا التقرير حالة نادرة للتزامن المرضي بين سرطان الثدي الغدي، والورم العضلي الأملس، والحؤول العظمي في الأرانب، كما يُسلط الضوء على الأهمية البالغة للتقييم الشامل للجهاز التناسلي لدى إناث الأرانب المتقدمة في السن وغير المعقمة التي تعاني من أورام الغدد الثديية.

الكلمات المفاحية: السرطان الغدي، الورم العضلي الأملس، الحؤول العظمي، الغدة الثديية، أورام الرحم، الأرانب المسنة