International Journal of Reproduction, Contraception, Obstetrics and Gynecology
*Natarajan U et al. Int J Reprod Contracept Obstet Gynecol. 2026 Jun;15(6):2225-2228*
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20261635

**Case Report**

# A rare case report on ovarian dermoid in hysterectomy patient

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**Received:** 24 March 2026
**Revised:** 18 April 2026
**Accepted:** 27 April 2026

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## ABSTRACT

Ovarian dermoid cysts, or mature cystic teratomas (MCT), are benign germ cell tumors, accounts for about 10-20% of ovarian tumors. It contains tissues derived from ectoderm, mesoderm, and endoderm. While common in younger women, they are rare in postmenopausal and hysterectomized individuals, with a small percentage exhibiting malignant potential. Here we present a case of 59 years old patient, who was hysterectomised 31 years ago who presented with complaints of abdominal pain. Ultrasound image revealed left ovarian dermoid cyst. patient underwent diagnostic laproscopy followed by minilaprotomy and left ovarian cystectomy. The postoperative period was uneventful. Histopathology confirmed MCT. ovarian dermoid cysts should remain in the differential diagnosis of adnexal masses in post hysterectomy patients, early imaging and appropriate surgical management prevent complications such as torsion and rupture.

**Keywords:** Mature cystic teratoma, Dermoid cyst, Hysterectomy, Adnexal mass

## INTRODUCTION

Dermoid cysts are one of the most common fat-containing tumors of the ovary and account for nearly 10-20% of all ovarian neoplasms. In many cases, these cysts remain asymptomatic and are frequently discovered incidentally during routine pelvic examinations or imaging procedures.[1] Clinical symptoms usually appear only when complications develop, including torsion, infection, or rupture.[2] In rare situations, a dermoid cyst may extend or perforate into nearby organs, leading to the formation of adhesions, which is considered an uncommon complication.[3]

The identification of sebaceous (fat-containing) elements along with calcifications typically allows for straightforward diagnosis of most dermoid cysts. These lesions are generally asymptomatic and are often discovered incidentally during imaging or clinical evaluation.[4] Torsion of the ovarian pedicle represents the most frequent complication of dermoid cysts and is reported in nearly 16% of cases. This condition results in impaired blood supply to the ovary, causing venous congestion and sterile inflammatory changes within the cyst wall. In situations of acute and complete torsion, the affected ovary or adnexa may eventually develop ischemic necrosis. In contrast, when torsion is partial, subacute, or chronic, the cyst or ovary may adhere to adjacent structures and progressively develop collateral vascular circulation.[5]

Ovarian teratomas show a diverse histological composition and may contain tissues originating from all three embryonic germ layers. Among these, ectodermal elements are most commonly observed and typically include squamous epithelium, skin appendages, and neural tissue. Mesodermal components may also be present, such as adipose tissue, smooth or skeletal muscle, cartilage, bone, and teeth. Endodermal derivatives can appear as mucin-producing or ciliated glandular epithelium, resembling tissues of gastrointestinal, bronchial, or thyroid origin Teratomas are generally classified into three

pathological groups based on their level of differentiation and biological behavior. The first group includes mature teratomas, which are usually benign and may occur as cystic lesions (MCT or dermoid cyst) or in solid form. The second category is immature teratomas, characterized by the presence of embryonic or neuroectodermal tissue and associated with malignant potential. The third group consists of monodermal or specialized teratomas, which predominantly contain a single type of tissue; examples include struma ovarii, ovarian carcinoid tumors, and teratomas with predominant neural differentiation.[6]

Residual ovarian tissue remaining after hysterectomy can continue to serve as a potential source of later pelvic pathology. Such conditions may include functional cysts, benign tumors, or even malignant lesions. When dermoid cysts arise or are identified in this context, they may create diagnostic challenges and can sometimes result in delays in appropriate clinical management.

Ovarian cysts are often asymptomatic and tend to resolve spontaneously without intervention. However, larger cysts may produce abdominal discomfort and a sensation of fullness. When a cyst exerts pressure on the urinary bladder, it can lead to increased urinary frequency and difficulty in complete bladder emptying. Clinical features associated with ovarian cysts include pelvic pain, gastrointestinal disturbances, and dyspareunia. Additional symptoms may include nausea, vomiting, breast tenderness, and a feeling of heaviness in the abdomen.[7]

Considering these factors, documenting cases of dermoid cysts occurring in patients who have undergone hysterectomy is important for increasing clinical awareness, enhancing diagnostic precision, and supporting appropriate surgical management. In this report, we describe a case of a post-hysterectomy patient who was diagnosed with a MCT, with emphasis on the diagnostic evaluation, surgical treatment, and the associated clinical implications.

## CASE REPORT

59-year-old women with history of abdominal pain who underwent hysterectomy at age of 30 years (details of hysterectomy not available). Per Abdomen- left iliac fossa mass. On bimanual examination-POD fullness with 10×10 cm mass felt more towards left. Her ultrasound showed mixed echoic well defined mass measuring 8.7×5.9×6.9 cm (vol-184 cc) in left adnexa, her CA125-202 IU/ml, CA19 9-126, her RMI score-606. she underwent diagnostic laproscopy and minilaprotomy with left ovariotomy. Her intraop findings-left ovarian cyst 9x9cm seen occupying pouch of douglas and left ovarian fossa. Left ovarian cyst found adherent to lateral pelvic wall sigmoid colon and bladder peritoneum. Cyst was meticulously separated from neiboring structures and retrieved in toto through minilaprotomy incision. Cut section- left ovarian dermoid cyst-9×9 cm with sebaceous material and hair. Peritoneal wash sent for cytology. Her histopathology report-benign MCT (benign squamous sebaceous apocrine glands, hair follicles and keratin flakes with mature smooth muscle). Her peritoneal wash- no evidence of malignancy. Her postoperative period uneventful, and the patient discharged on postoperative day 5 in stable condition.

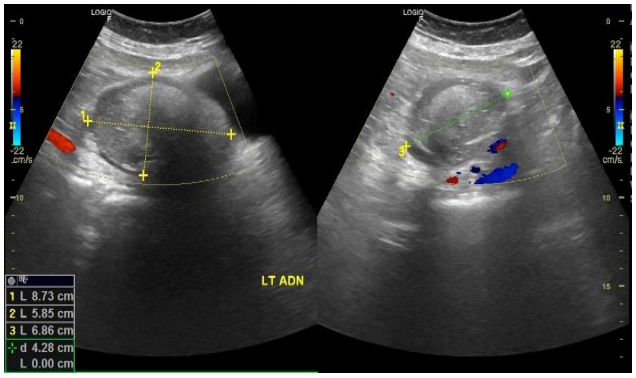


**Figure 1: Ultrasound image of left ovarian cyst.**

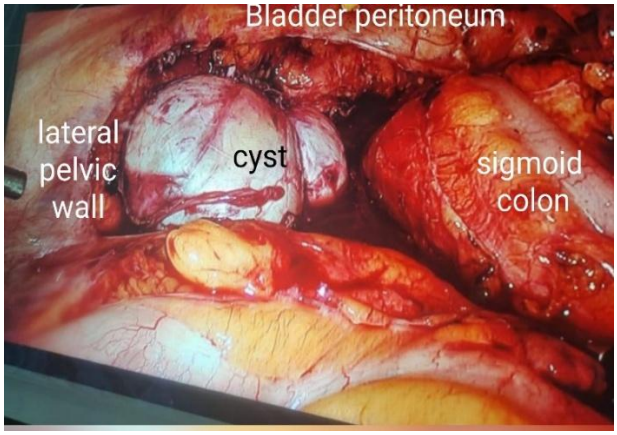


**Figure 2: Intraoperative image of left ovarian cyst.**

## DISCUSSION

Teratomas are the most common germ cell tumors affecting the ovary and constitute nearly 20% of all ovarian neoplasms. They are generally categorized into three main types: MCT s, immature teratomas, and monodermal or highly specialized forms such as struma ovarii. Among these, MCT is the most frequently observed variant. From a histopathological perspective, the diagnosis of MCT requires the presence of at least two well-differentiated tissue types originating from the embryonic germ layers-ectoderm, mesoderm, and endoderm-with ectodermal and mesodermal components being the most commonly identified. Typical findings include hair and squamous epithelium derived from ectodermal tissue, along with mesodermal elements such as adipose tissue or muscle.

Most MCTs are discovered incidentally during ultrasonographic examination because they often remain clinically silent. These tumors are most commonly seen in women of reproductive age, although they may also occur

in peri-menopausal and postmenopausal individuals. The detection of a dermoid cyst in a patient who has previously undergone hysterectomy presents particular clinical considerations, including the possibility of residual ovarian function, the importance of postoperative monitoring, and potential challenges in establishing an accurate diagnosis.[1]

MCT of the ovary is uncommon in postmenopausal women, although occasional cases have been reported and may sometimes be associated with increased androgen production. On ultrasonographic examination, the fatty component of an MCT typically appears as a hyperechoic area. Several characteristic imaging features may aid in diagnosis, including the Rokitansky nodule (dermoid plug), tufts of hair, the dot-dash sign, coarse or chunky calcifications such as teeth, the comet-tail appearance, and the tip-of-the-iceberg sign, all of which are considered suggestive sonographic findings of dermoid cysts.[1] In this patient we have mixed echoic well defined mass measuring 8.7×5.9×6.9 cm with features suggesting of dermoid cyst.

In women who undergo hysterectomy while retaining 1/both ovaries, remaining ovarian tissue may continue to function hormonally and physiologically. Clinical manifestations in these patients are often nonspecific and may include mild lower abdominal pain, pelvic discomfort/incidental discovery of ovarian cyst/mass during imaging performed for other reasons. Consequently, clinicians should maintain high level of suspicion when assessing post-hysterectomy patients who present with newly developed abdominal/pelvic symptoms.

MCTs may be associated with several complications, including ovarian torsion (around 16%), infection (approximately 1%), rupture (1-4%), and malignant transformation (1-2%). When assessing abdominal/pelvic pain in women with known ovarian cysts, important differential diagnoses include tubo-ovarian abscess, adnexal torsion, and cyst infection. Infection of dermoid cyst is relatively rare and is usually caused by ascending infections involving coliform bacteria. In such situations, thorough evaluation is necessary to rule out ovarian torsion, which remains the more common and clinically urgent complication. Although malignant transformation is uncommon, likelihood increases in postmenopausal women. For this reason, prompt surgical intervention is often advised, particularly in patients who are symptomatic/demonstrate progressive enlargement of cyst.[4]

Invasion of a MCT into adjacent pelvic or abdominal viscera is exceedingly rare, occurring in less than 1% of cases, with the urinary bladder being the most frequently involved organ.

Although multiple theories have been suggested to explain the origin of teratomas, the two most widely recognized are the misplaced blastomere theory and parthenogenetic development from a germ cell. Irrespective of the initiating mechanism, teratomas are thought to arise from totipotent embryonic germ cells that diverge from normal differentiation pathways, subsequently forming a variety of mature fetal-type tissues. The majority of ovarian teratomas remain asymptomatic and are often detected incidentally. In contrast, giant ovarian teratomas are more likely to produce clinical symptoms. Progressive abdominal enlargement may occur due to rapid growth of a unilateral tumor, frequently accompanied by capsular stretching, internal hemorrhage, or focal necrosis.[6]

Serum tumor markers such as CA-125, CA-19.9, and CEA may show mild to moderate elevation in some cases of MCT, as was observed in our patient. CA125-202 IU/ml, CA19 9-126. Other markers AFP, beta HCG, inhibin-normal. The presence of internal vascularity or solid, irregular components on imaging may raise suspicion for malignant transformation.

Surgical removal remains the definitive treatment for ovarian teratomas. Laparoscopic excision is typically favored due to benefits such as reduced intraoperative blood loss, shorter hospitalization, and faster postoperative recovery. However, laparoscopy carries an increased risk of cyst rupture and spillage during the procedure, which can lead to chemical peritonitis/recurrence. Consequently, careful surgical technique and the use of proper specimen retrieval methods are critical to minimize these risks.[8]

## CONCLUSION

Dermoid cysts of the ovary, though uncommon in postmenopausal women, should be considered in differential diagnoses. Ultrasonography is a widely accepted aid for detection of MCT of ovary, yet it may not always be conclusive. CT imaging of MCT composed of fat component, Rokitansky nodule, calcification. CT scan is the preferred

imaging modality because it is more sensitive in detecting fat and thus can clearly identify the dermoid cyst. Neglected MCT of ovary can grow to become of gigantic size or it may undergo tortion. So, we should keep in mind even in post hysterectomy patient dermoid as a differential diagnosis. So, early detection and management can be done.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: Not required*

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**Cite this article as:** Natarajan U, Sekar S. A rare case report on ovarian dermoid in hysterectomy patient. Int J Reprod Contracept Obstet Gynecol 2026;15:2225-8.