



Imaging Findings of Soft Fibroma of the Nipple: Two Case Reports

유두에 생긴 연성 섬유종의 영상의학적 소견: 2예 보고

Bora Im, MD¹, Woon-Ju Park, MD^{1*}, Sang Wook Kim, MD², Kye-Won Kwon, MD³,
Eun Mee Han, MD³Departments of ¹Radiology, ²General Surgery, ³Pathology, Daejin Medical Center Bundang Jesaeng General Hospital, Seongnam, Korea

Soft fibromas are benign skin lesions that primarily occur in the neck, axillae, and groin locations. The occurrence of soft fibroma lesions in the nipple is extremely rare. Herein, we present two cases of soft fibroma of the nipple, which occurred in a 51-year-old woman (Case 1) and a 32-year-old woman (Case 2). The mammographic and ultrasonographic features of each case are described in this report. Mammography revealed an oval-shaped isodense mass in Case 1 and an irregular-shaped isodense mass in Case 2. On ultrasonography, Case 1 showed an oval-shaped hypoechoic mass with increased vascularity, whereas Case 2 presented a microlobulated, irregular-shaped, iso- to hypo-echoic mass with subtly increased vascularity at the stalk. In both cases, surgical excision was performed and pathological examination revealed soft fibroma.

Index terms

Breast
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*Corresponding author: Woon-Ju Park, MD

Department of Radiology, Daejin Medical Center Bundang Jesaeng General Hospital, 29 Seohyeon-ro 180beon-gil, Bundang-gu, Seongnam 13590, Korea.
Tel. 82-31-779-0000 Fax. 82-31-779-0062
E-mail: woonju@dmc.or.kr

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INTRODUCTION

Soft fibroma is a slow-growing benign tumor of the skin that typically occurs in women of reproductive age. These lesions are generally present in the intertriginous areas such as the neck, axillae, and vulvovaginal locations and may be found on the trunk, upper extremities, face, and eyelids (1-4). The occurrence of soft fibroma in the nipple is extremely rare, and only a few cases of soft fibroma arising from the nipple have been reported (5-7). To our knowledge, there are no radiologic reports describing soft fibroma of the nipple in the literature. We report two rare cases of soft fibroma in the nipple showing different appearance and present the mammographic and ultrasonographic findings.

CASE REPORTS

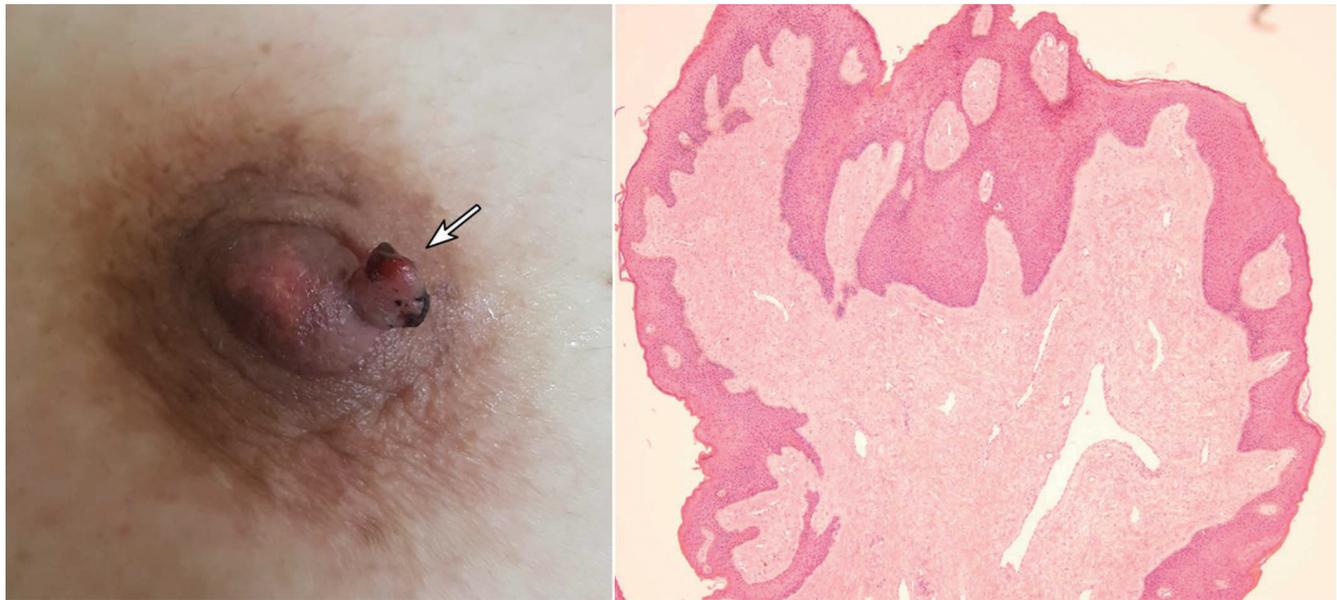
Case 1

A 51-year-old woman presented with a right nipple lesion for over a period of three months. The lesion had grown in size and had an episode of rupture and bleeding for 3 days prior to the presentation. The patient was not taking any medication, nor had any relevant history of trauma or previous surgery. On physical examination, the lesion was approximately 0.5 cm in size, brown-colored, with a polypoid protuberance. The lesion partially showed a red color change that seemed to have preceded bleeding (Fig. 1A). No abnormal discharge, swelling, erythema or accompanying skin change was observed. Mammography (Selenia Dimensions; Hologic Inc., Danbury, CT, USA) demonstrated an oval-shaped, isodense mass in the right nipple with-

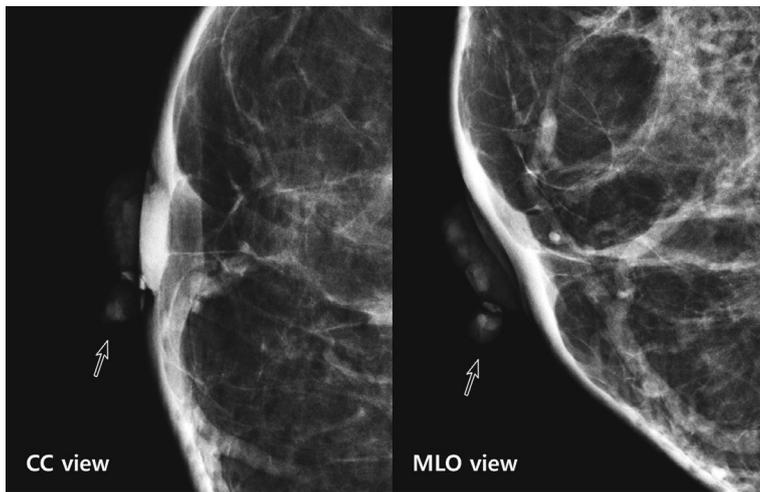
out microcalcification in the right breast (Fig. 1B).

Subsequently, ultrasonography (USG) (IU22 unit; Philips Medical Systems, Bothell, WA, USA) revealed a circumscribed, oval-shaped, hypoechoic mass, measuring 0.6×0.4 cm in size

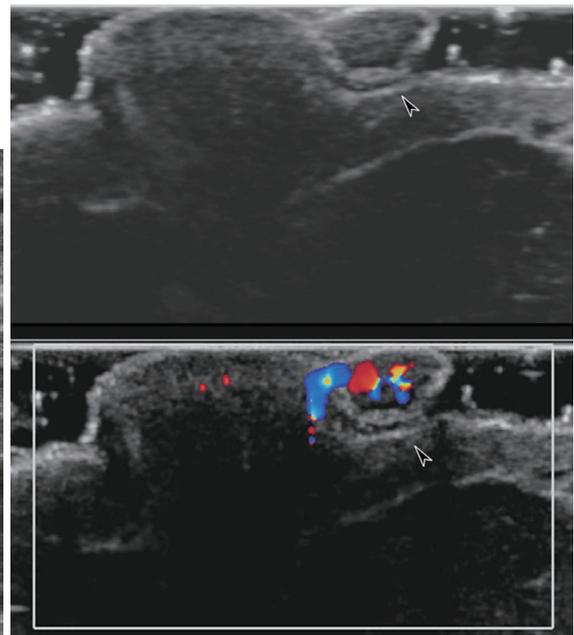
in the right nipple with increased vascularity on a color Doppler image (Fig. 1C). There were no other abnormal findings in the parenchyma of both breast and axilla on USG. Surgical resection was performed. The histologic examination revealed a



A



B



C

Fig. 1. A 51-year-old female patient with a soft fibroma in the right nipple (Case 1).

A. Left panel shows a polypoid protuberance on a right nipple, approximately 0.5 cm in size. The lesion is brownish in appearance and shows a reddish discoloration that could have preceded bleeding (arrow). Right panel shows a microscopic image of a polypoid lesion with mild acanthosis of an epidermal lining and loosely arranged fibrocollagenous stroma (hematoxylin and eosin staining, $\times 40$).

B. Mammographic CC view image and MLO view image show an exophytic isodense mass (arrows) in the right nipple without microcalcification.

C. Ultrasonographic images show a circumscribed, oval-shaped hypoechoic mass 0.6×0.4 cm in size (arrowheads) in the right nipple. The mass shows hypervascularity on the color Doppler image.

CC = craniocaudal, MLO = mediolateral oblique

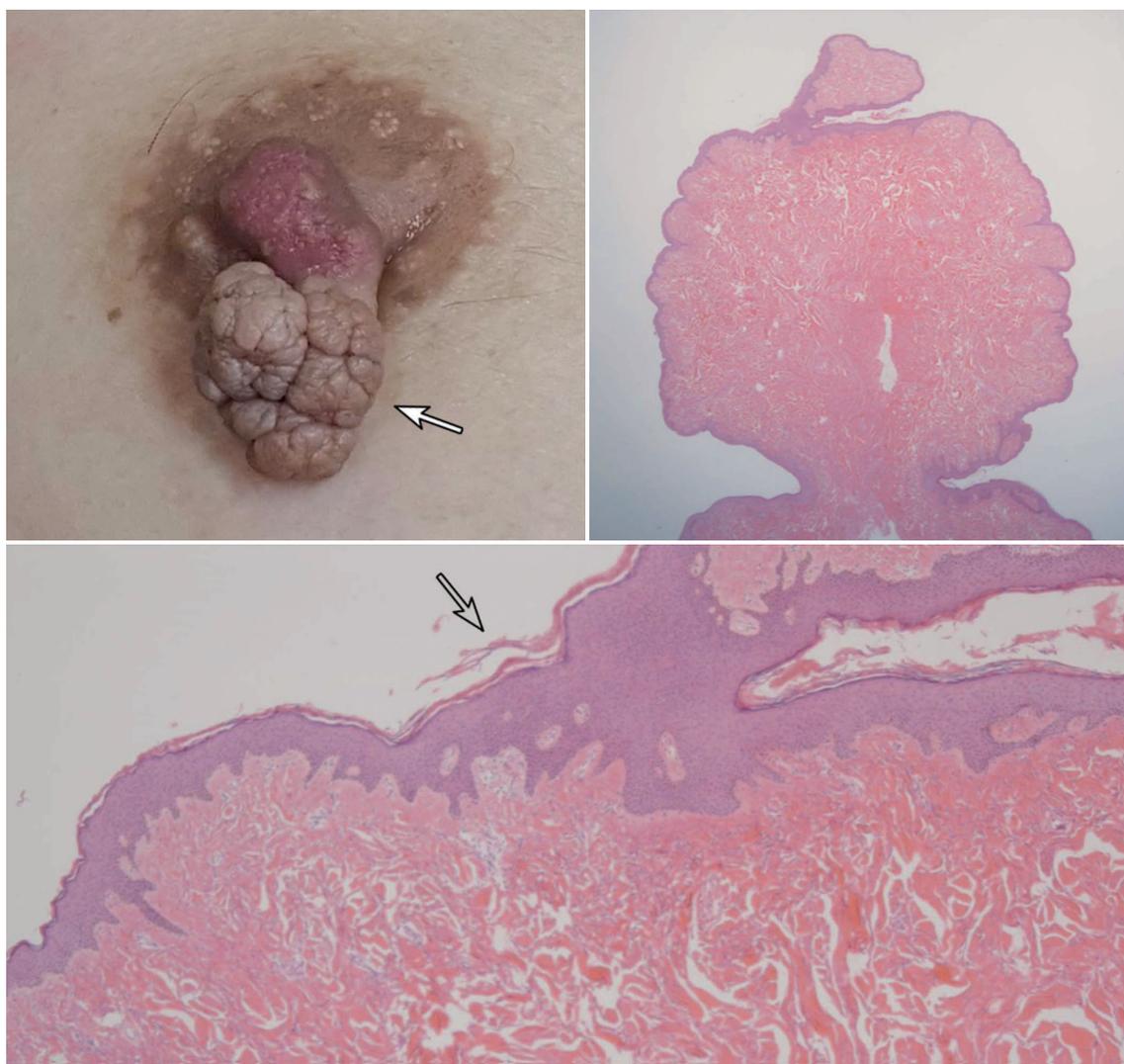
polypoid lesion with mild acanthosis of an epidermal lining and fibrocollagenous stroma (Fig. 1A), consistent with a diagnosis of soft fibroma.

Case 2

A 32-year-old woman presented with a painful lump originating in her right nipple that had been present for six months. The lesion developed when she was twelve years old and had slowly grown in size. She had no symptoms initially but started having pain six months ago. She was not taking any medication. There is no history of any underlying disease, trauma, sur-

gery or breastfeeding. On physical examination, the mass was approximately 2 cm in size, brown-colored, and pedunculated with a cauliflower-like appearance (Fig. 2A). Neither abnormal discharge nor adjacent skin color change was observed on her right breast. Mammography demonstrated an irregular-shaped isodense mass with a short pedicle in the right nipple. No other abnormal findings such as an underlying mass, parenchymal distortion, or microcalcification were noted in the subareolar space of her right breast (Fig. 2B).

Breast USG showed a pedunculated, microlobulated, irregular-shaped mass, measuring 1.7 × 1.5 cm in size, abutting the



A

Fig. 2. A 32-year-old female patient with a soft fibroma in the right nipple (Case 2).

A. Left upper panel shows a brown-colored and multi-lobulated mass, approximately 2 cm in size, with a short pedicle (arrow). Right upper panel is a microscopic image that shows a furrowed mass with loosely arranged collagen fibers (hematoxylin and eosin staining, × 12.5). The panel below shows mild hyperkeratosis, papillomatosis, and acanthosis of the epidermis (open arrow) (hematoxylin and eosin staining, × 40).

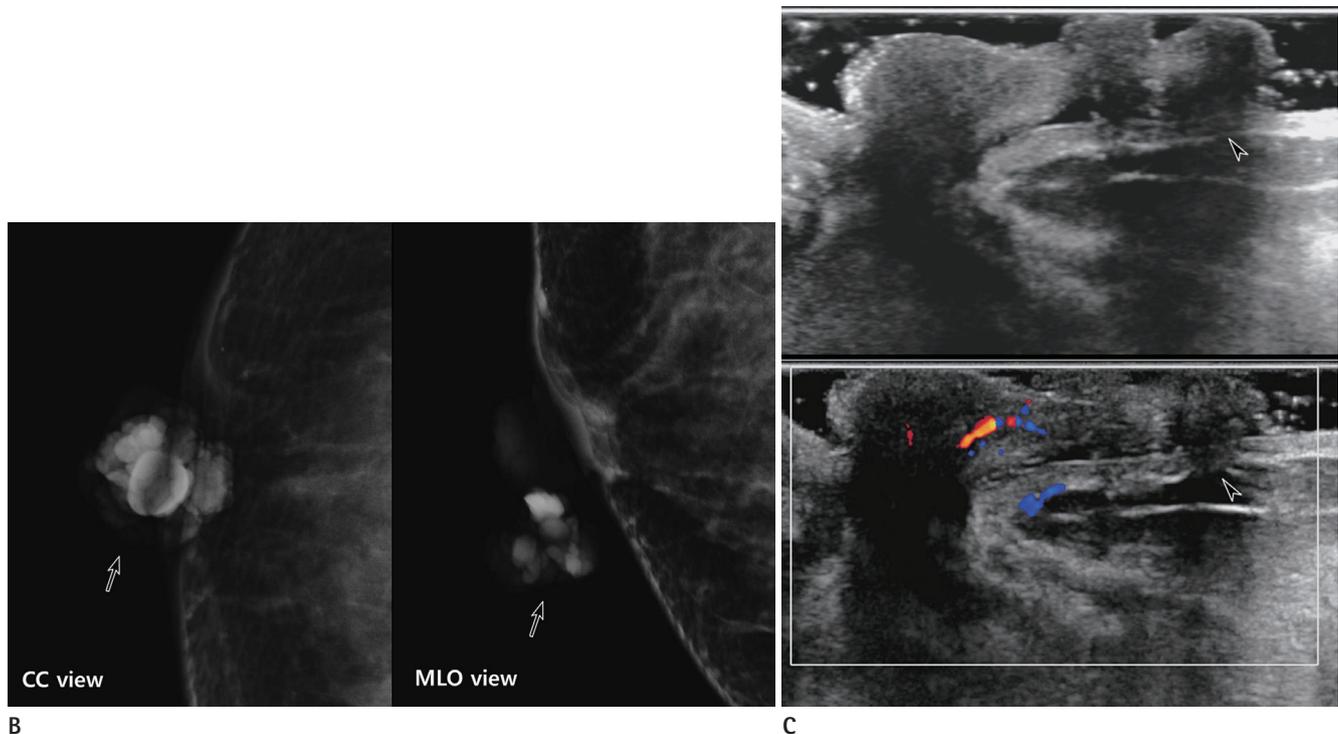


Fig. 2. A 32-year-old female patient with a soft fibroma in the right nipple (Case 2).
B. Mammographic CC view image and MLO view image show an irregular-shaped isodense mass (arrows) with a cauliflower-like appearance in the right nipple without microcalcification.
C. Ultrasonographic images show a microlobulated, irregular-shaped, and iso- to hypoechoic mass, measuring 1.7 × 1.5 cm in size (arrowheads), with posterior shadowing on the ultrasonography gray scale image. The mass shows slightly increased vascularity at the stalk on the color Doppler image. CC = craniocaudal, MLO = mediolateral oblique

right nipple with iso- to hypo-echogenicity. The mass showed slightly increased vascularity at the stalk on a color Doppler image (Fig. 2C). There were no other unusual findings in both breasts and axilla. Surgical resection was performed. The histologic examination revealed a furrowed mass with loosely arranged collagen fibers; there was mild hyperkeratosis, papillomatosis and acanthosis of epidermis (Fig. 2A). The diagnosis was confirmed as soft fibroma of the nipple.

DISCUSSION

A soft fibroma, which is also referred to as acrochordon, fibroepithelial polyp, cutaneous papilloma, or a skin tag is a type of mesenchymal lesion that usually appears as a furrowed papule, a sessile to large bag-like protrusion of the skin (4, 5). As stated in the Introduction, soft fibromas of the nipple are quite rare. They range in size from a few millimeters to several centimeters. These lesions are usually solitary, but multiple lesions are present in patients with Burt-Hogg-Dube syndrome (3, 4). It is a hormone-

sensitive tumor, and it commonly occurs in premenopausal women. The number of lesions may increase during pregnancy and in premenopausal women on hormone replacement therapy (1, 3). Some cases published in the English language showed that middle-aged women whose age range from 43 to 51 years are affected (5-7). Our patients' ages are similar to those of previously reported cases; one of our patients is a 32-year-old reproductive-aged woman and the other is a 51-year-old premenopausal woman. Both patients had not undergone hormone replacement therapy previously.

The epidemiology of soft fibroma is not clear, and it is reported to be associated with obesity, diabetes, abnormal lipid profiles, and metabolic syndrome (2, 3). No underlying disease was found in either patient. However, the body mass index of our 32-year-old patient is 25.3, suggesting that the patient is overweight. The lipid profile test was not performed on either patient. Clinical symptoms usually include bleeding, discharge, and general discomfort with the sensation of a mass (1). According to our records, the 51-year-old patient has a history of bleed-

ing and the 32-year-old patient has a history of pain from the soft fibroma. In most cases, the prognosis of soft fibromas is good and surgical excision is performed for symptomatic relief or cosmetic reasons.

Histologically, soft fibromas are characteristically polypoid and contain a fibrovascular core composed of increased number of blood vessels and covered by a squamous epithelium. They may harbor adipose tissue in the central portion and include several types of overlying epidermal hyperplasia such as acanthosis, papillomatosis, and hyperkeratosis. The associated stroma composed of loosely arranged collagen could exhibit a wide range of appearances (4, 7).

To the best of our knowledge, there are no radiologic reports of soft fibroma arising from the nipple in the literature. Mammographic examination revealed that Case 1 had an oval-shaped, isodense mass, and Case 2 had an irregular-shaped isodense mass. USG revealed that Case 1 had an oval-shaped, hypoechoic mass with increased vascularity and Case 2 had a microlobulated, irregular-shaped, iso- to hypoechoic mass, with subtly increased vascularity at the stalk. Neither case included any subareolar abnormalities such as duct dilatation, a mass, or calcification of the nipple and breast. Both cases showed increased vascularity within the lesions. Considering these radiologic findings, we concluded that our cases were focal mass lesions confined to the nipple rather than a disease of the breast, and are unlikely to be cystic lesions.

Many benign and malignant focal lesions can occur in the nipple-areolar complex (8, 9). On physical examination, the patients did not show skin retraction, skin thickening, or nipple inversion, and inflammatory skin changes such as erythema, erosion, or ulceration of the breast were not observed. These clinical findings suggest that malignant conditions, such as Paget's disease, Bowen disease, and breast cancer, are highly unlikely.

Importantly, other rare diseases such as an epidermoid cyst, a sebaceous cyst, and a nipple adenoma can also present with similar radiologic findings. On USG, an epidermoid cyst and a sebaceous cyst appear as well-circumscribed lesions and can have a solid-like heterogeneous or hypoechoic appearance (9). These two types of cysts can be distinguished from the fibromas via a color Doppler examination because there is no lesion vascularity. A nipple adenoma may appear as a mass confined to a nipple. It shows homogenous echogenicity and hyper-vascularity on

USG (10). However, clinically, it usually exhibits skin erosion, crusting, and serous discharge that may resemble mammary Paget's disease.

Generally, a histologic examination is required to confirm the type of a lesion, and the radiologic study could help the comprehensive diagnostic work-up of variable nipple-areolar complex diseases. USG allows for evaluation of blood supply and flow, and demonstrates the origin and extent of the lesion. Mammography should be used to exclude the abnormality of the surrounding breast tissue.

In summary, the nipple-areolar complex could be affected by various diseases, and appropriate differential diagnosis is needed. Although extremely rare, soft fibroma should be considered as a differential diagnosis for a lesion that arises in the nipple-areolar complex.

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유두에 생긴 연성 섬유종의 영상의학적 소견: 2예 보고

임보라¹ · 박운주^{1*} · 김상욱² · 권계원³ · 한은미³

연성 섬유종은 목, 겨드랑이와 생식 기관 주변에 주로 발생하는 양성 피부 질환으로 유두에 생기는 연성 섬유종은 매우 드물다. 저자들은 유두에 생긴 연성 섬유종으로 내원한 51세 여자 환자(Case 1)와 31세 여자 환자(Case 2)의 2예를 경험하였기에 유방 촬영술과 초음파 소견을 보고하고자 한다. 유방 촬영술 상 1예(Case 1)에서는 타원형 등밀도의 종괴로, 1예(Case 2)에서는 불규칙형 등밀도의 종괴로 나타났다. 유방 초음파 검사 상 1예(Case 1)에서는 저에코의 타원형 종괴로 보이며 종괴 내부에 증가된 혈관 분포를 보였고, 1예(Case 2)에서는 미세분엽형 경계의 불규칙형 종괴로 등에코 또는 저에코를 보이며 줄기 부분에 혈관 분포가 증가된 소견을 보였다. 수술적 절제를 시행한 결과, 두 예 모두 연성 섬유종으로 진단되었다.

분당제생병원 ¹영상의학과, ²외과, ³진단병리과