

SYRINGOMATOUS ADENOMA OF THE NIPPLE; a Case Report and Review

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Infiltrating syringomatous adenoma of the nipple is a benign lesion initially reported by Rosen in 1983. Infiltrating syringomatous adenoma of the nipple is a rare but distinct benign clinical entity affecting the breast. It is similar histologically to a syringoma, a benign tumour originating in the ducts of the dermal sweat glands, and importantly needs to be distinguished from a tubular carcinoma. The lesions are usually infiltrative, showing an expansile pattern of proliferation into adjacent tissues of the nipple and underlying breast. Involvement of the epidermis, however, has not been described. The lesions behave in a benign fashion, with no evidence of regional or distant metastasis in any of the reported cases. It often presents as a subareolar lesion with clinical, mammographic and ultrasound findings suspicious for malignancy. Whilst it may be possible to suspect the diagnosis on fine needle cytology, core biopsy or excisional biopsy is usually required to establish the diagnosis.

Case Report

A 46-year-old woman presented to our department with a mass in the subareolar region of her right breast, which had been palpable for over 20 years. Physical examination revealed a firm mass lesion in the right breast just beneath the nipple. The nipple was retracted. Nipple's skin was thick. No lymph node swelling was detected in any site, including the axillary, supraclavicular, or infraclavicular regions. The left breast appeared to have no abnormalities.

Mammography revealed a 21 mm sized mass lesion in the subareolar region, which was very dense and irregular in outline, and seemed to show spicular formation and foci of microcalcification. Ultrasound examination also demonstrated a poorly defined mass lesion, the internal echoes of which were heterogeneous. These findings were considered to be strongly indicative of carcinoma. The results of a needle biopsy were reported as "a high possibility of carcinoma". A breast mammography, sonography and needle biopsy demonstrated a well-circumscribed subareolar mass to an excisional biopsy of the lesion under local anaesthesia. In frozen sections negative margins were detected. The 3,5x2,5x2 cm surgical specimen consisted of a nipple and adjacent areolar skin, as well as underlying breast tissue. Serial sections revealed homogeneously white, firm tissue. The tumor was composed of ducts and tubules scattered in a fibrous stroma; characteristic comma or tadpole-shaped islands of squamous epithelium were seen (Fig 1-2). A few areas showed squamous cell metaplasia. Some ducts

were slightly dilated and contained eosinophilic secretions; the lining cells were small, cuboidal and contained a moderate amount of eosinophilic cytoplasm and central bland nuclei. The stroma was fibrous; lymphocytes and plasma cells were present. Staining for smooth muscle actin showed positivity limited to the myoepithelial cells surrounding the luminal epithelial cells. The results of an excisional biopsy were reported as tubular carcinoma. The same specimen was consulted to another pathology department and the result was reported as syringomatous adenoma (Fig 3-4).

Discussion

Syringomatous adenoma of the nipple is defined as a non-metastasizing, locally recurrent, and locally invasive tumor of the nipple/areolar region showing sweat duct differentiation (1). The earliest example of such a tumor was a case quoted by Johnson and Lawrence (1) from the German literature (reported in 1912 by Konjenty) (2).

The precise anatomic source of the breast lesion is uncertain. The absence of epithelial proliferation in the mammary ducts and the lack of connection with the epidermis in most cases suggest an origin from other structures (3). SA probably develops from a pluripotential adnexal keratinocyte which is capable of both follicular and sweat gland differentiation (4).

Patients with SA of the nipple have been reported to range in age from 11 to 76 years, with an average age of around 40 years (5-6). All reported lesions have been unilateral and none has been associated with axillary lymph node enlargement (7).

Radiologically, the lesion usually presents as a subareolar, spiculated mass indistinguishable from carcinoma. Ultrasound examination may reveal a poorly defined mass with distal acoustic shadowing (8). There are no radiological features specific to this tumour (9).

Histologically, SA of the nipple consists of small ducts or strands of basophilic squamous epithelial cells forming islands arranged haphazardly, permeating a marked desmoplastic or squamous stroma. It may vary between being primarily glandular or squamous with merging of one element into the other. The lesions were often characterised by its well-circumscribed tumour-like nodules composed of a proliferation of teardrop or comma-shaped is-

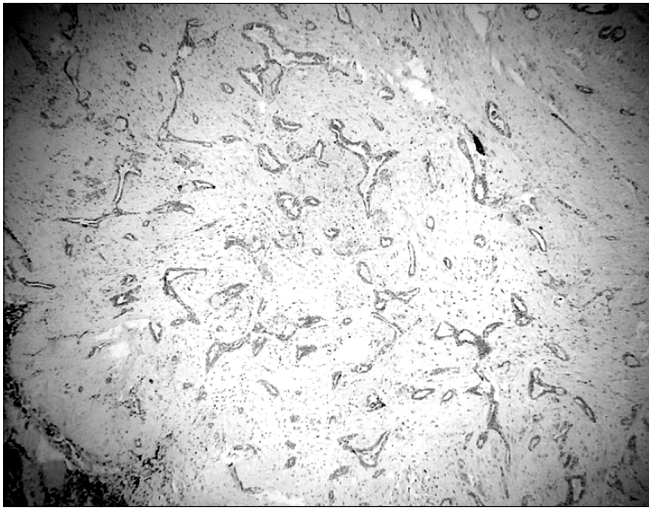


Fig 1. The tumor was composed of ducts and tubules scattered in a fibrous stroma (HEX 40)

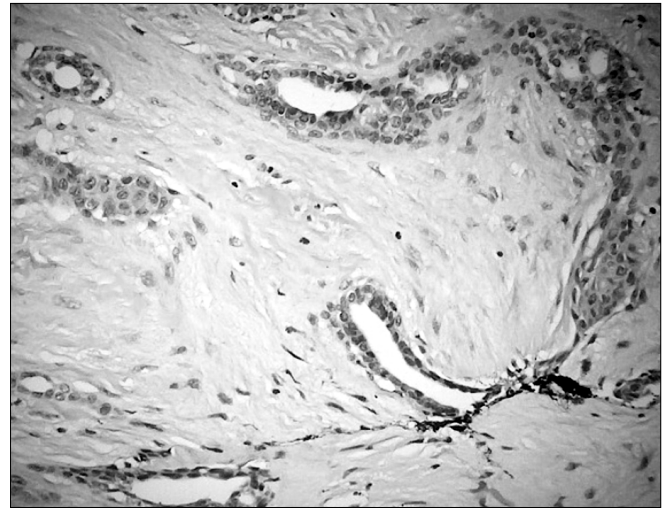


Fig 2. Comma or tadpole-shaped islands of squamous epithelium (HEX 200)



Fig 3,4. Postoperative view of nipple



lands of squamous epithelium. These squamous epithelial islands contain central lumens lined by eosinophilic cuticles or filled with amorphous debris, thus closely resembling the growth pattern of dermal eccrine syringomas. There are rare connections to the surface epidermis (10-11). Perineural invasion has been observed in some lesions (11). The proliferating cells within the ducts are usually squamous with keratinisation or squamoid, though ordinary epithelial hyperplasia may also occur less commonly. These cells are separated into two layers, an inner luminal layer of epithelial cells and an outer myoepithelial cell layer. Mitotic figures are infrequent (10-11-12).

Several lesions should be considered in the differential diagnosis of syringomatous adenoma of the nipple. Misinterpretation of the features of SA with its infiltrating margins and desmoplastic stroma as a carcinoma on frozen section has led to a false diagnosis of malignancy (8). The most important feature that helps distinguish SA from a well-differentiated (tubular) carcinoma is the presence of two cell layers (epithelial and myoepithelial) in

the widespread ducts of SA in contrast to the single layer of epithelial cells in well differentiated carcinoma (4). Tubular carcinoma sometimes arises in the subareolar region and nipple, where it has an infiltrative growth pattern that may be difficult to distinguish from syringomatous adenoma. Both invade smooth muscle and surrounding nerves. Features of tubular carcinoma not seen in syringomatous adenoma include intraductal carcinoma, Paget's disease of the epidermis, and angular glands. Squamous metaplasia is not a feature of tubular carcinoma, and its presence favors the diagnosis of syringomatous adenoma (3).

Hormonal receptor status can help to differentiate tubular carcinoma from syringomatous adenoma and low-grade adenosquamous carcinoma. While tubular carcinoma tends to be estrogen-positive, syringomatous adenoma and adenosquamous carcinoma are usually estrogen-negative (3).

Although syringomatous adenomas of the nipple are rare lesions, differential diagnosis includes clinically and histologically similar malignant breast lesions. Jones et al. (13), 7 of 11 cases had been

previously diagnosed as well-differentiated tubular carcinoma or were sent for consultation to exclude this diagnosis. In the case reported by Toyoshima et al. (14), a fine needle aspiration interpreted as probable low-grade adenosquamous carcinoma resulted in mastectomy with axillary dissection. Permanent histological sections demonstrated syringomatous adenoma. Frozen sections may also be misinterpreted as a malignant tumor with resulting mastectomy, as reported in an isolated case (15).

Recurrences have been reported from 25% to 55% in patients treated initially with some form of local excision or subcutaneous mastectomy (5). Patients treated by more aggressive local therapy including total excision of the nipple or mastectomy have

had no local recurrences. None of patients have had metastatic disease reported during the follow-up (4).

Conclusion

Infiltrating SA of the nipple is a rare benign but locally aggressive tumour which importantly needs to be distinguished from a tubular carcinoma. Clinicians and pathologists should be aware of the possibility of diagnosing this extremely rare tumor to avoid unnecessary mastectomy and axillary lymph node dissections. Optimal surgical management involves complete excision of the lesion and confirmation of histologically negative margins. Because of the central location and involvement of the nipple, recurrent lesions may be best managed by total mastectomy

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