Infarction of fibroadenoma of the breast

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Although infarction is an infrequent complication of a fibroadenoma, its recognition is important since it has been mistaken for carcinoma. Awareness of the lesion as well as careful evaluation of gross and microscopic findings will help to differentiate it from carcinoma. The pathogenesis of this complication is unclear.

Infarction of fibroadenoma of the breast is rare; less than 20 cases have been reported to date[1–6]. However, this lesion is important as it has been mistaken for carcinoma and has led to unnecessary mastectomy. We present 10 additional cases, 2 of whom were mistakenly diagnosed as having carcinoma.

Material

The files of Surgical Pathology section of Port of Spain General Hospital, Trinidad, were reviewed and all the lesions diagnosed as benign breast disease were re-examined. 680 fibroadenomas were noted during the 5-year period (1976–1980) under review. 10 (1.5%) of these benign tumours showed infarction. Clinical details of these cases were extracted from the patients' charts and pathology files and histological sections were studied using hematoxylin-eosin, reticulin and Masson trichrome stains.

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Report of the cases

Details of 10 patients are summarised in Table 1. All were negro females and presented with painful breast lumps. In 2 patients (Cases 1 and 10) carcinoma was suspected clinically because of skin tethering over the lump and palpable axillary lymph nodes. In the others the clinical diagnosis was fibroadenoma. All were solitary lesions confined to one breast and none had a history of trauma.

Pathology. The excised specimens were well encapsulated, nodular lesions varying in size from 1 to 10 cm in their greatest diameter. The cut surface was lobulated, soft in consistency and reddish grey in colour with scattered haemorrhagic areas. Microscopically all the lesions were similar with coagulative necrosis of the entire lesion and only a thin rim of viable tumour tissue. In 3 cases, however, the necrosis was so extensive that there was no recognisable architecture using routine haematoxylin-eosin stain. When examined with reticulin and Masson trichrome stains, the original pattern of fibroadenoma was still discernible. There was non-specific chronic inflammatory reaction and fibroblastic proliferation at the junction between the viable and necrotic tumour tissue. None of these lesions showed vasculitis or thrombo-occlusive vascular disease.

TABLE 1

Infarction of breast fibroadenoma (10 cases)

Case	*Age (yr)*	*Side*	*Size*	*Duration*	*Presentation*	*Pregnancy*
1	18	Right	6 cm	5 yr	Painful lump	lactating
2	20	Right	7 cm	3 yr	Painful lump	lactating
3	24	Left	8 cm	4 yr	Painful lump	lactating
4	30	Left	4 cm	7 yr	Painful lump	7 yr ago
5	20	Right	6 cm	2 yr	Painful lump	lactating
6	28	Right	4 cm	4 mth	Painful lump	4 yr ago
7	16	Right	8 cm	6 mth	Painful lump	nil
8	23	Left	1 cm	2 mth	Painful lump	lactating
9	14	Left	10 cm	1 yr	Painful lump	nil
10	33	Right	3 cm	5 mth	Painful lump	2 yr ago

Discussion

Fibroadenoma is the commonest benign lesion of the breast but infarction in these lesions is infrequent. Haagensen[7] found 5 instances of infarction in a series of 1,000 fibroadenomas. Majumdar *et al*[5] noted 2 cases in 404 fibroadenomas. In our survey of benign breast disease in a West Indian population, in Trinidad, fibroadenomas accounted for 50% of the benign lesions[8]; infarction was seen in 10 cases in a total of 680 fibroadenomas. It is well documented that fibroadenoma occurs more commonly among negroes than among whites[9,10]. We would expect, therefore, that infarction of fibroadenoma will be seen more commonly in a population such as ours in which fibroadenoma is the most common breast lesion.

It is important to recognise infarction of a fibroadenoma as it can be confused clinically with carcinoma. In 4 of the 6 cases described by Delarue and Redon[1] the clinical suspicion of carcinoma was so great that mastectomy was performed without biopsy. Robitaille *et al*[9] reviewed the literature and grouped mammary infarction into two categories depending on whether or not the lesions were mistaken for carcinoma. 2 of our cases were clinically mistaken for carcinoma. Pathologically the gross and microscopic features of the tumour are typical enough to be easily recognised as benign. Clinically, confusion between carcinoma and necrosis in a fibroadenoma is less likely if the possibility of this complication is considered.

The literature suggests that infarction of a fibroadenoma is seen most commonly in young women during pregnancy and lactation[2,3,5]. Multiple lesions with similar histological features have been described by different authors[3,5]. All our patients had solitary lesions confined to one or the other breast; five were pregnant or lactating.

The pathogenesis of this complication of fibroadenoma of the breast remains obscure. A possible cause during pregnancy and lactation may be a relative vascular insufficiency due to increased metabolic demands[12]. Though this may explain infarction in five of our cases, no cause was found in the remaining five. A number of diverse conditions have been reported to cause infarction[11–13]. Newman and Kahn[4] have demonstrated thrombo-occlusive vascular changes as a cause of infarction but recognised the possibility that the thrombosis may have followed the infarction. None of our cases showed evidence of vasculitis or thrombo-occlusive vascular disease. Drug-induced vasospasm and an unusual variant of Raynaud's phenomenon have also been suggested as aetiological factors[12]. Infarction of the breast has also been reported in patients using oral anticoagulants[13]. None of these predisposing factors could be identified in five of our cases. The great motility of fibroadenomas could conceivably lead to some degree of torsion resulting in ischaemia and infarction though this cannot be proven. Trauma might also cause haemorrhage and infarction of these tumours but was not a feature in our cases.

Infarction of a fibroadenoma should be suspected if a young woman presents during pregnancy or lactation with a painful breast lump. Because skin tethering and axillary lymphadenopathy may be associated with this condition it can be mistaken clinically for carcinoma. However, histologically, the possibility of confusion with carcinoma is less likely, especially if the diagnosis of malignancy is made only when viable tumour tissue is identified. Treatment by local excision is adequate for this lesion and under no circumstances should mastectomy be performed without histological proof of malignancy.

We believe this complication of fibroadenoma will be seen more frequently in a population such as ours in which fibroadenoma is the most commonly encountered breast lesion.

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