ARTERIAL CALCIFICATION, INCLUDING IN THE SUBCUTIS, IS COMMON IN CHRONIC RENAL FAILURE (CRF). ALTHOUGH NOT SPECIFIC, THIS LESION IS CHARACTERISTIC: MEDIAL CALCIFICATION WITH FIBROCALCIFIC INTIMAL THICKENING CAUSING SIGNIFICANT NARROWING OF THE LUMEN.  

A rare complication is infarctive necrosis of the skin and subcutis, generally of the extremities or lower abdomen, or both.  

Acute infarction of a breast has not been documented. It is reported here because of its relevance to the diagnosis and surgical management of necrotic skin lesions in unusual sites in patients having CRF.

CASE REPORT

A 41-year-old woman who had chronic renal failure required a simple mastectomy for infarction of one breast. On initial presentation her condition was managed as a skin ulcer. Arterial calcification is common in chronic renal failure and its pathogenetic connection with this uncommon event is relevant to the management of “skin ulcers” in general in this population.

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DISCUSSION

The risk of soft-tissue calcification is high in CRF because of the associated hyperphosphatemia and secondary hyperparathyroidism. Small arteries and arterioles in the subcutis are commonly calcified. However, ischemic necrosis is uncommon. Similar arterial lesions in the breast have been described radiologically and histologically in CRF patients, but clinical signs of breast fat necrosis are rare, even in the presence of skin and fat necrosis in other body areas; and breast infarction has not been documented. Arterial calcification is also commonly found in the breast with increasing age in the absence of CRF, but its morphology is different in that it lacks the fibrocalcific thickening of the intima with luminal narrowing, which is seen in CRF.

Since calcification of subcutaneous arteries in CRF is generally asymptomatic, other factors must trigger the infarctions, such as trauma, including that of surgery and of mammography. Our patient gave no history of trauma, and mammography was attempted after the fact. The calcified vessels appear to be predisposed to thrombosis during a coincidental hypercoagulable state, which was absent in this case. Two other factors may be relevant to our case: reduced perfusion through narrowed calcified vessels during shock probably contributes to the ischemic necrosis. Additionally, the local biophysical effects of large adipose deposits may also include interference with blood flow in the calcified arteries.

Our patient had both chronic hypotension and large pendulous breasts. The role of the secondary hyperparathyroidism in the development of the arterial calcification in CRF has provided a rationale for surgical parathyroidectomy. However, its role in the initiation of the necrosis has yet to be defined.

Necrosis of skin and subcutis as a complication of CRF is not well known outside the field of nephrology. An awareness that it may also be precipitated or aggravated by surgical procedures is important for surgeons.

FIG. 1. Sagittal slice of simple mastectomy specimen, showing infarcted fat (darker area) and ulceration of overlying skin.

FIG. 2. Radiographs of sagittal breast slice including both nonulcerated and ulcerated skin. (Left) Calcified vessels to right range from 1 to 3 mm in external diameter. Note patch of granular calcification pattern to right, part of which is magnified in right-hand portion of figure. (Right) Granular pattern of calcification in necrotic fat.
who may be asked to perform elective procedures — if done, the mammoplasties previously requested by our patient could have led to disastrous complications — or to carry out débridement and repair of necrotic sites in these patients. For pathologists, radiographs of excised tissues are useful in the localization and histologic sampling of the small calcified vessels.

References


Addendum

Another patient with a similar lesion complex was described in Human Pathology 1995;26:1055-64.