Elastosis is common in infiltrating ductal and lobular carcinomas of the breast, occurring in approximately 90% of cases. It is also well described in some benign lesions of the breast and tumours of the salivary gland. Reports of venous elastosis in association with large-bowel carcinomas are rare. We describe elastosis in single cases of prostatic, gastric, bronchiolar-alveolar and cervical carcinoma.

Summary

Elastosis is the presence of focal deposits of elastic tissue in abnormal amounts or situations. It is well described in infiltrating ductal and lobular carcinoma of the breast, being found in about 90% of cases. Elastosis is probably produced by fibroblasts, smooth-muscle cells or myofibroblasts, under the stimulation of the infiltrating cancer cells. Vascular (predominantly venous) elastosis is seen quite frequently in association with periductal elastosis. Venous elastosis also occasionally occurs in association with primary carcinoma of the large bowel. Elastosis in the breast is not specific to malignant disease but may be present in a variety of benign breast diseases. Apart from bowel and salivary gland tumours, the occurrence of elastosis in extramammary malignant disease is, to our knowledge, not documented in the English literature. We describe elastosis in cases of prostatic, gastric, bronchogenic and cervical carcinoma.

Methods

This is not a systematic study of the quantity of elastic tissue in malignant tumours. The cases reported in this article were observed incidentally during routine diagnostic procedures. No assumptions are therefore made as to the incidence or significance of elastic tissue in various malignant tumours. Clearly, further studies involving large numbers of tumours will have to be instituted to assess the precise incidence of elastic tissue and the possible prognostic significance.

Case reports

Case 1

A 74-year-old black man presented with symptoms of prostatism and on clinical examination had an enlarged, firm, right lateral lobe of the prostate. A biopsy specimen was taken and microscopic examination showed a well-differentiated adenocarcinoma (Fig. 1). Some of the ducts were cuffed by eosinophilic granular material which contained large quantities of elastic tissue (Fig. 2).

Case 2

A 54-year-old white man presented with a 6-month history of loss of appetite and weight. Barium meal examination showed an ulcer high up on the posterior wall of the stomach. A biopsy specimen was taken and microscopic examination showed a moderately well-differentiated adenocarcinoma of
Fig. 3. Well-differentiated adenocarcinoma of the stomach of the intestinal type (H and E x 132).

Fig. 4. Gastric adenocarcinoma showing neoplastic ducts surrounded by elastic tissue (elastic-Masson x 330).

Fig. 5. Bronchogenic adenocarcinoma of the bronchiolar-alveolar type. Granular material surrounds the vein on the right (H and E x 51).

Fig. 6. Large quantities of elastic tissue surrounding a vein coursing through bronchogenic adenocarcinoma (elastic-Masson x 330).

the intestinal type (Fig. 3). The stromal tissue between and surrounding the neoplastic ducts had an eosinophilic granular appearance. Special stains confirmed the presence of masses of elastic tissue (Fig. 4).

Case 3
A 64-year-old white woman, a non-smoker, presented with a history of chest pain, cough and severe dyspnoea. Chest radiography revealed a mass in the right lung, from which a biopsy specimen was taken, and microscopic examination showed a moderately well-differentiated adenocarcinoma of the bronchiolar-alveolar type (Fig. 5). Several venous channels within the tumour were cuffed by granular eosinophilic material shown to be elastic tissue (Fig. 6). Elastic fibres in lesser amounts were also demonstrable in the stromal tissue adjacent to the tumour.

Case 4
A black woman aged 60 years presented with a history of intermittent vaginal bleeding, and on examination a fungating tumour of the cervix was found. Biopsy showed a keratinizing squamous carcinoma (Fig. 7). Special stains demonstrated extensive elastosis of arteries and veins. Clumps of elastic tissue were also present in the stroma adjacent to islands of tumour (Fig. 8).

Discussion
Elastosis is well described in ductal and lobular carcinoma of the breast, occurring in 90% of cases, and is almost a normal component of many tumours of the salivary gland. It has also been described in cases of benign lesions of the breast, particularly so-called infiltrating epitheliosis.
Vascular elastosis is seen predominantly in veins, as occurred in the patient with bronchiolar-alveolar adenocarcinoma. The cervical squamous carcinoma demonstrated both venous and arterial elastosis. Elastosis does occasionally occur in colonic carcinoma, but has not been reported in gastric or prostatic carcinoma.

The significance of the occurrence of elastosis in malignant tumours is uncertain. In patients with breast cancer there appears to be an association between elastosis and response to therapy, tumours with no elastosis responding less often than those with prominent elastosis, a finding suggesting a relationship between elastosis and the hormonal environment in human breast tumours.

The significance of elastosis in these isolated cases of prostatic, gastric, bronchiolar-alveolar and cervical carcinoma is unclear. As in the case of breast cancer, hormonal factors may be of significance in elastosis associated with prostatic and cervical carcinoma. Oestrogen-receptor activity in breast carcinoma, a favourable prognostic feature, has also been shown to have a significant correlation with elastosis.

Similarly, elastosis in prostatic carcinoma may be a favourable prognostic sign and have some relevance to response to oestrogen therapy. Until recently there has been very little evidence that hormonal factors play a part in cervical carcinoma. However, Vessey et al. claim that long-term use of the contraceptive pill may increase the risk of cancer of the uterine cervix, although the component of the pill implicated is progesterone and not oestrogen. A clinicopathological study of prostatic and cervical carcinoma relating survival to the presence of elastosis is being undertaken.

REFERENCES