A matched pair *t* test gave a mean difference of 0.60 (standard error 0.12, 95% confidence interval 0.37 to 0.83, $t=5.11$, $df=187$, $p<0.001$; the urinary fibrinolytic activity scale multiplicative factor was thus 1.83, 95% confidence interval 1.45 to 2.30). This was a strongly statistically significant result, as expected, since 125 patients with stones had lower urinary fibrinolytic activities than their controls.

Comment

The crystalloids in the urine found in stones have received much attention, but there is little understanding of the factors controlling the behaviour of the organic macromolecules and their contribution to the genesis of urinary calculi. At least two thirds of the macromolecules in the urine of normal individuals have a molecular weight of less than 50 000, whereas in patients with stones all macromolecules are larger than this.⁵ It is therefore suggested that urokinase splits the larger aggregates into lesser macromolecules and this results in an increase of their surface area, which in turn results in an increase in the amount of crystalloids adsorbed on to these surfaces. A lowering of urinary fibrinolytic activity will result in a proportionate increase in the number of larger aggregates, and so there will be more free crystalloids in solution for precipitation, thus contributing to concrement formation.

Our study has shown that two thirds of stone formers have lower urinary fibrinolytic activity than matched controls, that this is an important factor in urolithiasis, and that it would be logical to raise the value of urinary fibrinolytic activity to physiological levels in an attempt to prevent the formation of further stones in these patients.

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Aneurysm presenting as a breast mass

Clinical teaching dictates that an aneurysm must be included in the differential diagnosis of a mass. This is rarely thought of, however, when breast lumps are examined. We report on a patient with an aneurysm presenting as a breast mass, probably caused by the spontaneous rupture of a vessel during a period of acute hypertension.

Case report

A 57 year old hypertensive woman with quiescent ulcerative colitis suffered an exacerbation of her hypertension, manifested by severe headaches, palpitations, and tremor. Her sitting blood pressure was 185/115 mm Hg, and her antihypertensive treatment was increased to metoprolol 100 mg six hourly and chlorthalidone 50 mg daily. In addition, she was receiving sulphasalazine 1 g 12 hourly to control her colitis. During this hypertensive episode she was woken one night by a sudden, severe pain in her right breast, and the next morning bruising was noticed over the lower half of the breast. There was no history of trauma to that breast.

When she was referred to hospital two weeks later a 3 cm smooth, mobile mass was palpated in the upper outer quadrant of the right breast; bruising was still apparent in the lower half of the breast. Bloodstained fluid was aspirated from the

mass and both ultrasound and mammography showed a cystic lesion in the affected area.

Before excision biopsy thoracic examination by the anaesthetic senior house officer showed a loud murmur originating from the breast mass. The murmur could be stopped by pressure, medial to the mass, over the right second rib. Angiography through the right subclavian artery showed an aneurysmal arteriovenous fistula arising from the right anterior second intercostal artery (figure).

Radiograph of right subclavian angiogram, showing the aneurysm (open arrow) and its feeding artery and draining vein.

The aneurysm was excised with ligation of the feeding artery and draining vein. Histological examination showed a false aneurysm, filled with a blood clot, in continuity with the feeding artery. No focal features were present to suggest atherosclerotic degeneration, trauma, vasculitis, or medial degeneration.

Comment

Aneurysms of the intercostal arteries are rare but may occur after sudden trauma.¹ The aetiology of this aneurysm remains obscure, as there were no salient histological features to suggest its origin. In the absence of any history of trauma we believe that the most likely cause was the spontaneous rupture of a vessel during a period of acute hypertension, resulting in a false aneurysm with an arteriovenous communication.

Rupture of arteries in the acute hypertensive state is well described in association with intracerebral vessels,² the circle of Willis,³ and the aorta,⁴ but to our knowledge there are no reports concerning this condition in the breast.

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