Abstract Five months after dislocation of the left shoulder a 66-year-old patient noted a swelling in the left axilla. After CT-scan a malignant tumour was suspected and an incisional biopsy was performed. A week later the patient died due to hemorrhaging from the biopsy wound. The autopsy revealed a false aneurysm of the axillary artery. The incision had damaged the external wall of the aneurysm leading to consecutive rupture. Post-mortem findings are presented.

Key words Traumatic axillary aneurysm • Improper anamnesis • Incisional biopsy • Fatal diagnostic treatment

Introduction Damage to blood vessels after blunt trauma may cause serious diagnostic problems especially if complications arise at a later time. Failure to diagnose vascular complications can lead to death from internal hemorrhage or loss of the affected limb. Therefore only the inclusion of such complications into a diagnostic investigation can prevent such false conclusions (Böhler 1954; Köhl and Bassey 1991).

Case report A 66-year-old woman who had a history of previous dislocation fell and suffered a dislocation of the left shoulder. Following self-reduction she was taken to the hospital. On examination there was a large hematoma of the shoulder and the upper arm, accompanied by pain and restricted movement. The patient received no treatment and was discharged with a residual perception disorder of the 4th and 5th finger.

Five months later a rapidly enlarging swelling appeared in the left axilla and a CT-scan revealed a massive tumour suspected to be malignant (Fig. 1). A biopsy was recommended which was carried out one month later. The pathologist diagnosed a conglomerate of necrotic detritus. Six days after the incision the patient suddenly noted a “bubbling” in the axilla and a short time afterwards she collapsed. The emergency physician found the patient uncon-
scious with copious hemorrhaging from the biopsy wound. Resuscitation remained unsuccessful.

At autopsy the left axillary artery was found to be stretched over a tumour measuring 12 × 12 × 10 cm. Filling with radiopaque medium revealed a slit-shaped flow throughout the tumour down to the incisional wound (Fig. 2). A cross section revealed a false aneurysm with fluid blood in the centre, with a radially increasing coagulation and organization (Fig. 3). The arterial wall lying next to the tumour was partially ruptured and a communicating hematoma had developed. The biopic incision had obviously weakened the aneurysmal wall which finally ruptured due to blood pressure.

The histological investigation revealed mild intimal sclerosis of the axillary artery and moderate to severe generalised atherosclerotic changes. At the site of the vascular rupture there was no dissection of the arterial wall but the borders of the laceration were surrounded by massive scar tissue (Fig. 4). In addition there was focal necrosis of the media with loss of nuclei and halic homogenisation. There was no siderosis, no formation of cysts or mucoid substances. The aneurysm itself displayed a tough fibrous wall, focal granulation tissue and serous fluid.

**Discussion**

The delay between the injury to the shoulder and the vascular complication in this case is striking. In most cases of shoulder trauma, arterial damage occurs at an early stage. A few reports mention the occurrence of a false aneurysm up to 6 months after the accident (Fitzgerald and Keates 1975; Majeed 1985; Bhamra et al. 1989). As a rule this development is caused by a primarily ruptured intimal layer and subsequent forming of the aneurysm.

Brinkmann (1975) postulated that this development could be anticipated in the elderly and in atherosclerotic vessel degeneration as the tensile strength of the adventitial layer relatively exceeds that of the intimal-medial layer in these particular cases. Moreover traumatic damages to the vasa vasorum have to be taken into account as a pathological mechanism resulting in possible malnutrition of the vessel wall, subsequent ischemic necrosis, secondary rupture, and development of a false aneurysm (Brinkmann 1974).

In our particular case, no histological evidence was found supporting such pathogenetic conclusions. The cicatricial tissue at the arterial laceration merely indicated a period of at least several weeks between laceration and autopsy. The focal loss of nuclei in the media could be...