

Sudden death due to pulmonary embolism from right atrial myxoma

T. Fracasso · K. Varchmin-Schultheiss

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Introduction

Sudden cardiac deaths still constitute a topical theme in the forensic literature [4, 22]. Whilst the majority of the contributions is dealing with complications of inflammatory diseases [3, 8], there still exists a considerable number of reports in relation to atherosclerosis [9, 10]. More recently, there have also occurred reports with functional dysregulations [20, 21] whilst sudden death due to primary heart tumours has been rarely reported [12, 14, 17, 18]

Primary cardiac tumours are a rare autopsy finding with a reported prevalence of 0.05% in autopsies [16]. Approximately 50% of them are atrial myxoma [11] that can be identified at the left (75%) or the right (25%) atrium [13].

Case report

A 35-year-old woman woke her husband at early-morning hour because of sudden fear of imminent death. The woman fainted few minutes later after vomiting. The emergency physician could only certify the death. The day before, the

woman had complained about influenza-like symptoms. Considering the young age of the woman, a medicolegal autopsy was ordered to shed light on the manner and cause of death.

At autopsy, the body was that of a 35-year-old Caucasoid woman, 164 cm in height and 45 kg in weight.

At dissection of the heart, a 3×2×1.5-cm mucous gelatinous mass with granular surface and foci of haemorrhage slipped out of the pulmonary artery. The dissection of the heart showed a 4×3×2-cm polypoid tumour firmly adherent to the *fossa ovalis* in the right atrium (Fig. 1). This neoplasm was similar to the material slipping out of the pulmonary artery. The heart weighed 265 g; no pathological changes were detectable at the valves or the coronary arteries. The cardiac muscle was normal. The subpleural part of the middle right pulmonary lobe showed signs of infarction. Moderate cerebral and pulmonary oedema was also present.

Histology of the cardiac tumour and the embolic material showed numerous spindle-like, polygonal or stellate cells in abundant loose vacuolised stroma, rich in mucopolysaccharides and glycosaminoglycans (Fig. 2). A delicate net of reticular fibres was visible with Gomori's stain. Besides fresh haemorrhages, also haemosiderin deposits could be detected with Prussian blue (Fig. 3). The surface of the tumour was covered by thrombotic material with the typical coral-like stratification. The other organs did not show pathological changes.

Toxicological investigation, including alcohol was negative. On the basis of these findings, we diagnosed the fragmentation of a myxoma of the right atrium with acute lethal pulmonary embolism.

T. Fracasso (✉) · K. Varchmin-Schultheiss
Institut für Rechtsmedizin, Universitätsklinikum Münster,
Roentgenstr. 23,
48149 Muenster, Germany
e-mail: Tony.Fracasso@ukmuenster.de



Fig. 1 Polypoid tumour adherent to the *fossa ovalis*. The granular surface shows a myxoid matrix with fresh bleedings

Discussion

The mortality related to atrial myxoma is low [2]. Besides the possible disturbance of the heart activity due to the obstruction of a valve [15], bleedings and fragmentations can occur with subsequent embolism [1, 7, 12, 16]. This seems more likely to occur in the left heart, probably because the higher pressures facilitate the fragmentation [19]. The repeated embolism of little myxomatous fragments in the right heart can lead to pulmonary hypertension [2, 19].

In our case, the sudden rupture of a voluminous myxoma of the right atrium determined the obstruction of the pulmonary artery with lethal acute *cor pulmonale*.

The presence of haemosiderin deposits indicates recidivating bleedings. The initial lung infarction was probably

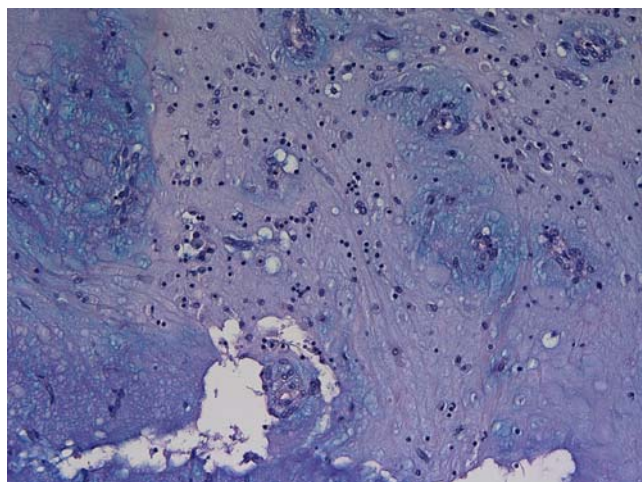


Fig. 2 The tumoral tissue shows numerous polymorphic cells in an abundant stroma rich in mucopolysaccharides and glycosaminoglycans (Alcian Blue, ×200)

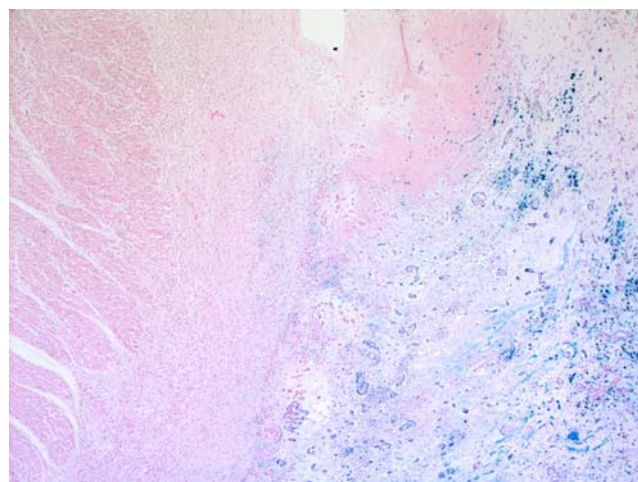


Fig. 3 The tumour (*right*) adheres to the thickened endocardium and shows regressive changes (Prussian blue, ×40)

caused by a small embolised fragment that had obstructed a peripheral artery some time before death and that was not identified at autopsy.

This case has to be classified into the group of the sudden unexpected deaths from natural cause. As other similar publications [5, 6], this article focuses the readers' attention on a rare disorder of medicolegal interest.

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