Papillary fibroelastoma as an accidental finding in a multislice computed tomography scan of coronary arteries

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Papillary fibroelastomas represent less than 10% of all primary cardiac tumours. They are usually incidental autopsy or surgical findings, or detected during echocardiography or catheterization. The case of a 58-year-old man with typical exertional chest pain hospitalized for an elective multislice computed tomography (MSCT) scan of the coronary arteries is described. The MSCT scan showed a pathological, mobile lesion within the aorta lumen only, not obstructing the ostia of the coronary arteries, and was confirmed by echocardiography. The typical features of the tumour in the MSCT scan and on echocardiography were the basis for the diagnosis of papillary fibroelastomas in the patient. Surgical excision was proposed, but the patient declined.

Key Words: Aortic valve; Echocardiography; Heart diseases; Tomography; Tumour

Primary cardiac tumours represent less than 5% of all cardiac tumours. Benign cardiac tumours account for 75% of primary cardiac tumours, the most common of which are myxomas, usually originating in the left atrium (1); the remaining 95% are metastatic tumours to the heart (2). Papillary fibroelastomas are rare, benign primary cardiac neoplasms, representing less than 10% of all primary cardiac tumours studied at autopsy or after resection (3) and are classified as endocardial tumours (2). In fact, they are considered the most frequent primary cardiac tumours originating in the valvar endocardium (4). Several terms, such as fibroma, cardiac papilloma, valvar papilloma, myxofibroma, fibroelastic hamartoma and endocardial papillary fibroma, have been used to identify papillary fibroelastoma, which is the most widely accepted name of the tumour (5,6). Approximately 90% of the papillary fibroelastomas reported in the literature were attached to valves, mostly on leaflets of the aortic valve (7,8). This location of the tumours suggests a potential for dynamic coronary ostial obstruction leading to myocardial ischemia, although they may also manifest as valvular insufficiency or as an embolic complication (2).

Fibroelastomas are characteristically small, avascular, solitary tumours (more than 90% [3,8]) with multiple spicules,

La découverte accidentelle d'un fibroélastome papillaire pendant une tomodensitométrie multicoupe des artères coronaires

Les fibroélastomes papillaires représentent moins de 10 % de toutes les tumeurs cardiaques primaires. Ils constituent généralement des constatations accessoires de l'autopsie ou d'une intervention chirurgicale ou sont décelés pendant une échocardiographie ou un cathétérisme. Est décrit le cas d'un homme blanc de 58 ans souffrant de douleurs thoraciques classiques à l'effort, hospitalisé en vue de subir une tomodensitométrie multicoupe non urgente des artères coronaires. La tomodensitométrie a révélé une lésion pathologique mobile circonscrite à la lumière aortique, n'obstruant pas les orifices des artères coronaires et confirmée par échocardiographie. Les caractéristiques classiques de la tumeur à la tomodensitométrie et à l'échocardiographie ont permis de diagnostiquer le fibroélastome papillaire chez le patient. Une excision chirurgicale a été proposée, mais le patient l'a refusée.

resembling a sea anemone, and are connected to the endocardium by a short pedicle (1). Most identified lesions are less than 1 cm in diameter (9), but they range in size from 0.1 cm to 4 cm (10-12). Patients in whom the lesions have been reported are generally adults, usually older than 50 years (3,8), although age has ranged from neonate to 92 years (3,13), with equal distribution in men and women (6). Before the availability of transthoracic echocardiography and transesophageal echocardiography, papillary fibroelastomas were usually incidental autopsy (13) or cardiac surgical findings (5). These tumours have also been detected during echocardiography or catheterization for coronary disease (14), or when investigating the source of an arterial embolus (10). After reviewing the literature, we have found only one report (15) of a papillary fibroelastoma being primarily detected using multislice computed tomography (MSCT) scanning.

We present the case of a man who previously led a very active life. The patient presented with typical exertional chest pain and the following risk factors of ischemic heart disease: age of 58 years, history of smoking, hypercholesterolemia (6.48 mmol/L) and positive family history (father and two brothers experienced myocardial infarctions and coronary artery bypass graft surgery, and died suddenly in their sixth decades of life). The

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Figure 1) Multislice computed tomography scan showing papillary fibroelastoma of the aortic valve. **A** The axial multislice computed tomography scan visualizing an oval, irregular tumour (arrow), continuous with the valve ring by means of thin stalk in the region of the left coronary sinus; **B** Oblique, multiplanar reconstruction view along the long axis of the ascending aorta (AO). **C** Virtual angioscopic reconstruction. LV Left ventricle

Figure 2) Transesophageal echocardiography – longitudinal cut of papillary fibroelastoma (arrow). AO Aorta; LA Left atrium; LV Left ventricle

patient's exercise test results were positive and his initial rest electrocardiogram showed sinus rhythm of 60 beats/min with no ST-T wave abnormalities. Coronary angiography was proposed, but the patient refused. He was hospitalized in the Department of Cardiology at the Medical University of Lublin (Lublin, Poland) for an elective MSCT scan of the coronary arteries. The MSCT scan was performed using the eight-row tomograph LightSpeed Ultra (GE Medical Systems, USA), carried out with retrospective electrocardiogram gating and a

collimation 1.25 mm, rotation time of 0.5 s and table feed of 3 mm/s to 3.5 mm/s. After a series of native axial scans, a contrast medium bolus (100 mL to 150 mL, 4 mL/s) was administered, and the scan delay was determined using the bolus tracking technique. Secondary, multiplanar reconstructions with maximum intensity projection and three-dimensional volume rendering were obtained using the Advantage Workstation 4.0 (GE Medical Systems, USA). The MSCT scan showed a pathological, mobile lesion within the aorta lumen only, not obstructing the ostia of the coronary arteries, that was 9 mm by 10 mm in size and adherent to the commissure of the aortic valve leaflet by a short pedicle (Figure 1). The tumour was irregular in appearance, with well-demarcated borders and a homogeneous texture (37 HU to 53 HU). Small calcium deposits were detected within the wall of the left main coronary artery, with no other significant changes suggesting ischemic heart disease. Because the lesion had not been reported in previous echocardiographic examinations performed at other hospitals and the diagnosis of the papillary fibroelastomas in those patients was suggested by MSCT scanning, transthoracic echocardiography and transesophageal echocardiography were repeated (HP Sonos 5500, Hewlett Packard Medical, USA) in the typical projections. Additional projections, which provided better visualization of the lesion, revealed a heart normal in size and function, and a normally functioning aortic valve that contained a 10 mm by 11 mm tumour-like structure, mobile only within the aorta lumen, with its small stalk originating from an aortic commissure (Figure 2). The typical features of the tumour found by MSCT scanning and echocardiography, which have previously been reported in a large group of patients (16) and have been consistent with published case descriptions (4-6,9,14,17,18), were the basis for the diagnosis of papillary fibroelastoma. Because left-sided, mobile tumours are currently recognized as a cause of cardiac and neurological symptoms, even in otherwise asymptomatic patients (3,4,6,11-13,18,19),

and because the presence of fibroelastoma in the patient was the probable cause of angina symptoms (20), surgical excision was proposed, but the patient refused any interventional procedures. For one year, the patient was under constant cardiological supervision, with no change in his condition.

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