Case report

Thymic cyst presenting as tachy-brady syndrome

Christopher Andrew Efthymiou*, James Andrew Charles Thorpe

Department of Thoracic Surgery, St James's Hospital, Beckett Street, Leeds, LS9 7TF, United Kingdom

Received 10 November 2008; received in revised form 12 February 2009; accepted 16 February 2009; Available online 26 March 2009

Abstract

Tachy-brady syndrome or sick-sinus syndrome as it is also known is a cardiac rhythm disturbance resulting in alternating episodes of bradycardia and tachycardia. Diagnosis can be difficult because of its nonspecific symptoms and elusive findings on electrocardiogram or 24 h tape. Thymic cysts are relatively uncommon tumours that are predominantly asymptomatic and located in the anterior mediastinum. We present the first known report of tachy-brady syndrome associated with a large thymic cyst. Treatment consisted of dual-chamber pacemaker implantation prior to video-assisted removal of the thymic cyst.

© 2009 European Association for Cardio-Thoracic Surgery. Published by Elsevier B.V. All rights reserved.

Keywords: Thymic cyst; Mediastinal mass; Arrhythmia; Pacemaker insertion

1. Introduction

Tachy-brady syndrome is a cardiac rhythm disturbance commonly caused by idiopathic degenerative fibrosis of the sinus node. Other intrinsic sinus node disorders leading to tachy-brady syndrome include amyloidosis, haemochromatosis, sarcoidosis, cardiomyopathies and ischaemia. Extrinsic aetiologies consist of electrolyte disorders hypothyroidism, hyperthyroidism, drugs and sepsis amongst others [1]. Patients with tachy-brady syndrome tend to be asymptomatic; however symptoms experienced can include syncope, pre-syncope, palpitations or dizziness. The mainstay of treatment is atrial or dual-chamber pacemaker placement that provides effective relief of symptoms and lowers the incidence of atrial fibrillation and thromboembolic events [2].

Thymic cysts are benign tumours of the thymus characterised by the presence of thymic tissue within the cyst wall. They are thought to be remnants of the thymopharyngeal duct and can be found at any point along the course of the thymus as it migrates from the neck into the mediastinum during embryological development. Thymic cysts are most frequently located in the anterior mediastinum and are commonly asymptomatic or incidental finding.

Our patient presented with tachy-brady syndrome associated with an anterior mediastinal thymic cyst.

2. Case report

A 72-year-old man presented to his general practitioner with recent onset symptoms of intermittent dizziness. Physical examination was unremarkable except for sinus bradycardia (42 bpm). The patient was accordingly referred to cardiology for further investigation.

An ECG performed (Fig. 1A) confirmed the clinical findings of sinus bradycardia and a 24 h tape was requested which revealed episodes of tachyarrhythmia alternating with bradycardia down to a rate of 35 bpm. A diagnosis of tachy-brady syndrome was made along with the decision to implant a permanent pacemaker (DDDR). The patient underwent routine investigations prior to implantation of the device and a chest radiograph was amongst the first investigations performed. This revealed the presence of a well-defined spherical opacity in close proximity to the pericardium (Fig. 2a). In view of this finding a CT scan of the chest was requested (Fig. 2b) which depicted the lesion to be a well circumscribed mass of low attenuation within the left anterior mediastinum (7.5 cm × 8.5 cm) that was most likely to represent a benign thymic cyst or cystic teratoma.

Implantation of the pacemaker was uneventful (Fig. 1B) and once the patient had recovered from the procedure he was referred to the thoracic surgeons. Following thoracic consultation the patient was admitted for elective surgery and diagnostic removal of the mass. A video-assisted approach was chosen using three ports (5th intercostal space anterior axillary line, 3rd ICS posterior axillary line, 7th ICS posterior axillary line). The cyst was dissected from the mediastinum with visualisation and protection of the phrenic nerve (Fig. 2c). The lesion was then removed from the thorax.
in a sealed bag and sent for histological examination. Following the procedure the patients’ recovery was unremarkable and he was discharged home on the 2nd postoperative day. Histology confirmed the mass to be a benign thymic cyst measuring 11 cm × 9 cm × 3 cm with no suggestive features of malignancy (Fig. 2d).

At routine follow-up the patient had no further episodes of syncpe and had made an unremarkable postoperative recovery.

3. Discussion

Congenital mediastinal thymic cysts are benign tumours of the thymus derived from a remnant of the third bronchial pouch. These rare lesions were first reported in 1897 by Loupalt [3] and represent 1% of all mediastinal masses [4,5]. They may be located in any position along a line extending from the angle of the jaw medially to the midline of the neck, thence descending into the anterior mediastinum as far as the diaphragm. They are most frequently detected as an anterior mediastinal mass on chest radiograph or as a palpable mass above the suprasternal notch and usually giving rise to no symptoms.

Tachy-brady syndrome occurs in 0.03% of the population and its incidence increases with age. It is predominantly caused by idiopathic degenerative fibrosis of the sinus node although both intrinsic diseases of the sinus node and extrinsic causes exist. Patients are often asymptomatic; however a myriad of symptoms including palpitations, dizziness, unexplained falls, fatigue, dyspnoea, confusion and sudden death may occur. The diagnosis of tachy-brady syndrome is first and foremost a clinical diagnosis dependent that symptoms are related to an arrhythmia recorded on ECG or 24 h tape. The mainstay of treatment consists of atrial or dual-chamber pacemaker implantation with the addition of pharmacological or ablation therapy of tachycardia.

Mediastinal masses are well documented cause of arrhythmias [6]. Our patient’s presentation was unique in that it is the first documented association of a thymic cyst associated with tachy-brady syndrome. No previous medical history alluded to this involvement and routine investigations prior to pacemaker implantation revealed the presence of a mediastinal lesion.

Thymic cysts are benign and prognosis is excellent once excised. Total surgical removal is recommended [7]. We opted for a video-assisted approach to excision of the lesion for its recognised advantages of reduced postoperative pain, time to discharge and specifically in the presence of a pacemaker the reduced use of electrocautery. Following surgery our patient made an unremarkably recovery and has experienced no further symptoms.

In conclusion we present a case of tachy-brady syndrome and its association with a large thymic cyst. In this case the aetiology of tachy-brady syndrome may or may not be directly related to the thymic cyst nevertheless the lesion was removed for diagnostic and prognostic reasons. A literature search of ‘thymic cyst & tachy-brady syndrome’ has revealed no publications of this phenomenon indicating the rarity of this finding.

References