1971[5], the initial reports of the disease in the extraoral gastrointestinal tract not appearing until 2001[6].

Pulse granuloma is characterized by a chronic granulomatous reaction to a foreign body of vegetable origin[1], typically indigestible cellulose deposited under the mucosa[3]. Most pulse granuloma patients have a history of bowel disease, including diverticulitis, fistula, perforation, ulcerative colitis, appendicitis, or anastomotic leakage[7], allowing the foreign body to reach the deep layers of the intestinal wall. The oral cavity is the site most often affected, the occurrence of pulse granuloma at other sites being extremely rare[3]. However, there have been reports of pulse granuloma in the stomach, small intestine, colon, peritoneum, mesentery, genitourinary tract, and skin[2,7].

Pulse granuloma predominantly affects males[7], of a broad range of ages, cases having been described in patients from 13 to 85 years of age[7]. The symptoms are vague and nonspecific[8], occasionally including abdominal pain and discomfort[2].The physical examination is usually unremarkable, although a palpable mass can be identified[2,7].

The imaging evaluation of pulse granuloma is usually made either by ultrasound, the findings of which are often nonspecific, or by CT, which is more relevant because of its high sensitivity and specificity for the detection and characterization of foreign bodies in the gastrointestinal tract[8]. Nevertheless, because foreign bodies of vegetable origin do not produce hyperintense images, the diagnosis is not usually obtained by CT. Upper gastrointestinal endoscopy is a useful tool in the study of gastric lesions and allows the collection of material for histopathological evaluation. However, endoscopic biopsies are usually small and superficial, which can make it difficult to confirm the diagnosis of granuloma pulse[8]. The diagnosis is made through exclusion on the basis of the histopathological findings[1]. The possibility of pulse granuloma should be considered in cases of expansive lesions in the gastrointestinal tract[8], the main differential diagnoses being adenocarcinoma, gastrointestinal stromal tumor, and leiomyoma[8]. The definitive treatment is surgical intervention[1].

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Caseous calcification of the mitral annulus: computed tomography features

Dear Editor,

A 62-year-old patient with chronic kidney disease, who was undergoing treatment with intermittent dialysis, was admitted to the hospital for investigation of a complaint of progressively worsening dyspnea, despite the optimization of the dialysis. To elucidate the case, ancillary tests were ordered, such tests including echocardiography. The echocardiography showed an expansive formation in the mitral valve, and cardiac computed tomography (CCT) was performed in order to better evaluate that finding (Figure 1). The CCT identified a coarse caseous calcification between the anterior and posterior commissures, accompanied by a significant reduction in the size of the mitral valve orifice, with a maximum aperture of 0.7 cm^3, as determined by planimetry. The CCT images allowed the diagnosis of degenerative caseous calcification of the mitral annulus.

Improving the use of imaging methods in the evaluation of cardiovascular diseases has been the objective of a number of recent studies in the radiology literature of Brazil[1–5]. Caseous calcification of the mitral annulus is a chronic degenerative process that usually involves the posterior mitral annulus[6]. It is most prevalent in elderly females[7] and in patients with chronic kidney disease who are on hemodialysis[8–10]. It is a rare disease, accounting for only 0.5–1.0% of all calcifications of the mitral annulus. Although rare, it is one of the major differential diagnoses of cardiac tumors, thrombi, vegetations, and abscesses[11].

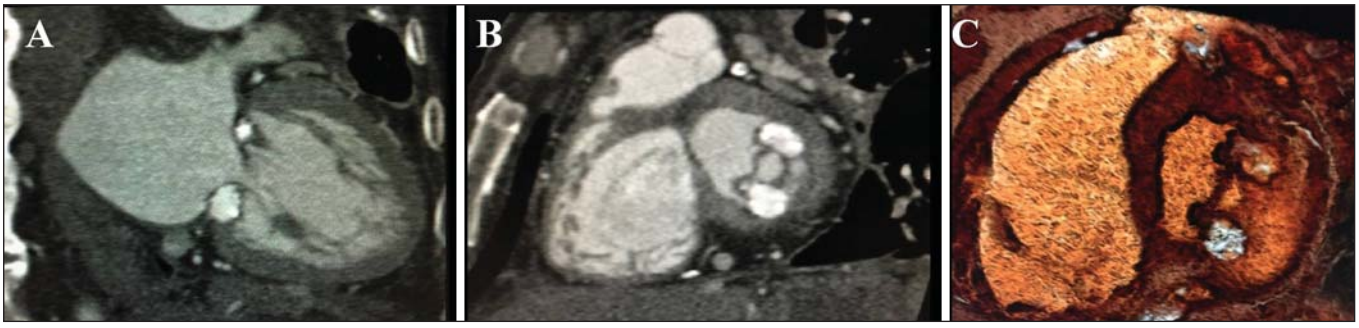

Figure 1. Degenerative caseous calcification of the mitral valve. **A:** Long axis two chambers showing coarse caseous calcifications between the anterior and posterior commissures. **B:** Short axis (in the mitral valve plane) showing caseous calcifications, together with significant restriction of the mitral valve orifice. **C:** Volume rendering reconstruction confirming the diagnosis of degenerative caseous calcification of the mitral annulus.

In most cases are asymptomatic patients, and the diagnosis is established by examination of cardiac imaging performed for other purposes. The symptoms, when present, correspond to palpitations, dyspnea, and syncope[11]. The prognosis of caseous degeneration of the mitral annulus is good, especially in patients who are asymptomatic, although some patients develop severe symptomatic valvular dysfunction; in the latter group of patients, the prognosis is poor and surgery should be considered[9,12].

On the CCT scans, we noted a hyperintense crescent-shaped mass or a well-defined oval-shaped mass with peripheral calcification, usually along the posterior mitral annulus, which was not enhanced after contrast administration[13]. The heterogeneity of the content of the mass was confirmed by the variation in its density, which can range from negative Hounsfield units, suggesting fatty degeneration, to elevated Hounsfield units, suggesting a high protein content and structural calcification[14]. The central hypointensity was secondary to liquefaction of the calcium that fills the center of mass[11,13,15].

In this context of our findings in the case presented here, we can conclude that CCT helps confirm the diagnosis, allows the degree of mitral valve stenosis to be evaluated, and offers measures to improve treatment strategies, especially those involving transcatheter or percutaneous transapical mitral valve implantation. Therefore, CCT is considered an excellent tool for the diagnosis of caseous degeneration of the mitral annulus.

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Aortic arch anomaly in an adult patient: a case of right aortic arch with aberrant left subclavian artery and Kommerell's diverticulum

Dear Editor,

We report the case of a 54-year-old male presenting with vague symptoms of discomfort when swallowing. The patient underwent magnetic resonance imaging of the chest. The examination showed right aortic arch with an aberrant left subclavian artery and Kommerell's diverticulum (Figures 1 and 2).

Thoracic diseases of vascular origin have been the subject of a number of recent publications in the radiology literature of Brazil[1–5]. First described by Fioratti et al., right aortic arch is an uncommon birth defect, of unknown cause, occurring in 0.05% of the general population. It is often asymptomatic but can be accompanied by dysphagia and complications arising from the formation of an aneurysm. Such an aneurysm generally occurs at the origin of the left subclavian artery and is known as Kommerell's aneurysm or Kommerell's diverticulum, which can cause compression of mediastinal structures or can rupture spontaneously[6–13]. In children, the symptoms can also be associated with existing congenital cardiac abnormalities[7].

Various systems for classifying right aortic arch have been proposed. The most widely used classification system is that devised by Edwards, who described three main types of right aortic arch: type I, with mirror-image branching of the major arteries; type II, with an aberrant subclavian artery; and type III, with an isolated subclavian artery (connected to the pulmonary artery via the ductus arteriosus)[8]. In the case presented here, the variant was classified as an Edwards type II right aortic arch, which accounts for approximately 40% of all cases[7].

In an autopsy study cited by Faucz et al.[7], 50% of cases of right aortic arch were associated with an aberrant left subclavian artery, which can be located behind the esophagus (in 80%), between the trachea and the esophagus (in 15%), or anterior to the trachea (in 5%). In some cases, right aortic arch is associated with a congenital heart defect[7,9,10].

The treatment of right aortic arch is generally surgical and is quite complex. Preoperative imaging tests are extremely important for the surgical planning, which relies heavily on knowledge of the anatomical distribution of the local structures, as well as of the size and extent of the aneurysm. Although outpatient treatment is an option, endovascular repair has been performed successfully[7,11].

The indication for surgical intervention in right aortic arch continues to be a subject of debate. Surgical intervention is considered an acceptable option when the diameter of the orifice of the diverticulum is > 30 mm or the diameter of the descending aorta adjacent to the diverticulum is > 50 mm[11].