Right-sided endocarditis is exceptional in non-drug addicted patients without previous heart disease. Few cases have been published, and its diagnosis sometimes presents a significant clinical challenge. We describe a 57-year-old patient with no history of parenteral drug addiction or vascular catheter use, who had tricuspid valve endocarditis in a morphologically normal valve. The clinical debut was characterized by acute febrile syndrome, purpura (petechia) on the legs, and oligoarthritis. This entity usually has a good prognosis and responds well to treatment, and presents certain common clinical features (persistent fever, pulmonary lesions, anemia and microscopic hematuria) that can lead the clinician to suspect the diagnosis. However, diagnosis should be based on microbiological studies (S. aureus is the organism isolated most often) and on echocardiographic findings.

Key words: Endocarditis. Tricuspid. Nonaddict.

INTRODUCTION

Right-sided infective endocarditis (IE) is common in intravenous drug abusers and accounts for 35%-60% of endocarditis cases in this population.1,2 Prior to the increase in intravenous drug addiction in recent decades, right-sided endocarditis was rare and occurred almost exclusively in patients with cardiac malformations.3,4 According to current estimates from large series, only 5%-10% of right-sided IE appear in non-addicted patients.5,6 Definite diagnoses of right-sided IE are exceptional in non-addicted patients without predisposing heart disease. Very few of such cases have been reported in the literature and their diagnosis can pose a significant clinical challenge.7

We describe the case of a man with no prior history of venipuncture, recently diagnosed in our department with tricuspid valve endocarditis in a morphologically normal valve.

CLINICAL CASE STUDY

A 57-year-old man with a history remarkable only for a duodenal ulcer that had been inactive for several years, was admitted for a febrile syndrome (up to 40°C) of seven days' duration, severe generalized joint and muscle pain with significant prostration, reddish dot-like skin lesions on both legs, and inflammation of...
the left shoulder and elbow. He showed no clinical in-
fectious focus of the respiratory, abdominal, genitouri-
nary or otorhinolaryngeal tract. He denied the use
of injection drugs or intravenous catheters. He had no
alcohol habit, risk behavior for sexually transmitted
disease or recent dental procedures. He had no his-
tory of rheumatic fever. The patients’ clinical history in-
cluded a small superficial lesion on the left elbow that
had occurred 5 weeks before and took several days to
heal.

Physical examination showed a temperature of
38°C, fine end-inspiratory crackles in the lower third
of both lung fields, a significant limitation in mobility
due to intense joint and muscle pain, signs of inflam-
mation in the left acromioclavicular and sternoclavici-
lar joints and to a lesser degree in the left elbow, and
multiple dot-like purpuric-petechial lesions on both
legs, which were negative on diascopy. All other as-
pects of the comprehensive physical examination were
normal. There were no skin or mucosal stigmata of en-
doendocarditis, venipuncture marks, heart murmurs, lym-
phadenopathy, signs of meningism, or neurological
symptoms.

Laboratory analyses disclosed normocytic anemia
(10.5 g/dL of hemoglobin), leukocytosis (23 000/µL)
with neutrophilia (85%), liver panel alterations with
moderate cholestasis (bilirubin, 2.0 mg/dL; alkaline
phosphatase, 416 U/L; GGT, 75 U/L), and microsco-
pic hematuria (20 RBCs per field). Bilateral basal
parenchymal involvement was seen in the chest x-ray.
Serology for human immunodeficiency virus was
negative. Oxacillin-sensitive Staphylococcus aureus
grew in all four blood cultures and transesophageal
echocardiography showed a mobile, 16x3 mm, fili-
form vegetation in the lateral leaflet of the tricuspid
valve, which was morphologically normal apart from
this feature (Figure 1). There were no signs of vegeta-
tions in the mitral, aortic or pulmonary valves, which
were all normal. These findings were corroborated in
the follow-up transesophageal study performed 24
days later.

Chest computed tomography (CT) (Figure 2)
showed multiple peripheral pulmonary nodules, sug-
uggesting septic emboli. No alterations were observed
in x-rays of the shoulders and elbows. The diagnosis
of native tricuspid valve IE with no clear predispos-
ing condition was established. The portal of entry
was not precisely identified, although the left elbow
skin lesion described by the patient was considered,
even though there was no significant evidence of in-
flammation. The endocarditis was complicated by
asymptomatic pulmonary involvement, anemia, vas-
culitic purpura, and oligoarthritis, probably due to an
immunologic mechanism. Skin biopsy was not per-
formed since the lesions were regressing, and the
synovial fluid was not studied because of the small
amount.

Therapy with parenteral cloxacillin at a dose of
2 g/4 h was started. This treatment was changed to cefa-
zolin after findings consistent with immunooallergic in-
terstitial nephritis were observed (deterioration of re-
nal function with significant peripheral eosinophilia
and eosinophiluria, all of which resolved with the
change in antibiotic), although there was no histologi-
ical confirmation. Subsequent challenge study was not
considered appropriate. After 6 weeks of specific in-
travenous antibiotic therapy, blood cultures were nega-

Fig. 1. Transesophageal echocardiogram showing a mobile, 16x3
mm, filiform image inserted in the medial segment of the atrial aspect
of the lateral leaflet of the tricuspid valve, consistent with a vegetation.

Fig. 2. Chest computed tomography image showing various small, bi-
lateral, peripheral and subpleural nodules, with cavitation in some ca-
ses, suggesting septic emboli. The wedge-shaped opacities with an in-
ternal air bronchogram, in which the base is in contact with the pleura,
suggest small pulmonary infarcts.
tive, the patient was hemodynamically stable and the joint symptoms had resolved completely, leaving no radiologic sequelae.

DISCUSSION

Infectious endocarditis is uncommon in patients who are not drug abusers and have no predisposing heart disease. Infection of the right heart valves appears in 5%-10% of all cases of infectious endocarditis and is almost always associated with intravenous drug abuse, by far the most common predisposing factor, with more than 80% of tricuspid valve endocarditis cases occurring in drug addicts. Right-sided IE occurs much less frequently in nonaddicted patients as a complication of permanent intravenous catheter placement, untreated skin or genital infections, or underlying congenital heart disease. Tricuspid valve involvement in a patient with no predisposing conditions and a structurally normal heart, as occurred in the patient described, is a clinical rarity in which the diagnosis can be quite complicated. No large studies have considered and quantified the frequency and clinical characteristics of this condition.

Generally, isolated native tricuspid valve IE in nonaddicted adults occurs in younger patients, up to the fifth decade of life. In the majority of cases (70%), there are underlying medical conditions (alcoholism, abortion, colon disease, immunodeficiency, permanent catheters, septic process in the oral cavity, skin or genitals, etc). None of these conditions was clearly identified in the case presented.

From the etiologic viewpoint, the pathogen most often isolated is S aureus (although in a smaller percentage than has been described in drug abusers). The portal of entry of the microorganism into the bloodstream is not always determined, as seemed to occur in the present case, where the skin lesion was not conclusive. An inflammatory skin process that might have been the bacteremic focus of infection was never identified. Nevertheless, the bacteremia is usually endogenous and community-acquired, and the skin is the most common portal of entry, particularly in the case of S aureus. Other sources of infection are the genitourinary tract and the colon.

The clinical presentation invariably consists of persistent fever associated with pulmonary events (generally asymptomatic), anemia and microscopic hematuria, signs that constitute the “tricuspid syndrome,” according to the description of Nanadakumar and Raju. The absence of peripheral stigmata of endocarditis or relevant murmurs in the majority of cases is noteworthy. The murmur of tricuspid regurgitation is usually not detected at the time that the signs and symptoms present, as occurred in the case described. Among the systemic manifestations, the joint, muscle and skin signs that dominate in the picture presented by our patient are not included in the typical clinical data described for nonaddicted patients with native tricuspid valve IE in the main series. This fact makes the case described, in which left heart involvement was ruled out by 2 transesophageal echocardiograms in an interval of more than 3 weeks, even more unusual.

As in any case of IE, the clinical picture, positive findings on blood culture and echocardiography (the gold standard) are the main diagnostic tools in native tricuspid valve IE. In general the prognosis is excellent with medical treatment (specific antibiotic therapy and support have a high success rate) and the development of heart failure is uncommon. Only 25% of cases require valve replacement or surgery. The indications for the latter option are the same as in any patient with IE: failure of antibiotic therapy with persistent fever, or right heart failure.

Mortality associated with native tricuspid valve IE is lower than that described for endocarditis in patients with a predisposing condition.

REFERENCES

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