

# Isolated Tricuspid Valve Endocarditis in Non Addicted Elderly Patient: A Case Report

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## Abstract

We present the case of an elderly patient with isolated native tricuspid valve endocarditis with no context of intravenous drug abuse. The patient presented with fever and dyspnea. Large vegetation located on the tricuspid valve was detected by transthoracic echocardiography. Group G streptococcus grew in two out of three blood cultures. The patient has no history of intracardiac catheters and we found no evidence of tumor. The patient was treated medically with satisfying clinical improvement.

The interest of this clinical case is to show that the diagnosis of right sided endocarditis in elderly can be missed especially if the context is not very evocative or clinical manifestations are not specific, the prognosis is excellent with a low hospital mortality rate; this benign condition is successfully treated medically. Surgery is only needed in minority patients.

## Introduction

Infective Endocarditis (IE) has become very common in elderly subjects with a particular clinical, biological and prognostic profile. Indeed, the major incidence of IE was observed in a 65 years or older patients; this age group carries a risk of endocarditis 4.6 times higher than the general population [1].

Unfortunately previous reports showed that the occurrence of endocarditis in advanced age was linked to a poor prognosis with an increased risk of complications [2]. The mortality rate remains high despite the progress in treatment mainly because of the delayed diagnosis resulting from atypical and non specific symptoms [3,4].

In another context, right sided endocarditis is known to occur in particular situations as intravenous drug use, in patients with intracardiac material or with congenital heart diseases, however for a subgroup of patients without risk factors and native normal valves, Tricuspid Valve Endocarditis (TVE) continues to prosper and can even be discovered at autopsy [5].

## Case Report

An 82 year-old man with previous history of chronic obstructive pulmonary disease, was admitted to hospital because of fever, chills and dyspnea. The onset of illness was one month before admission, with asthenia, anorexia and loss of weight. One week before admission, a physician prescribed an oral antibiotic to treat presumed acute pneumonia, with no improvement. The patient had not undergone any invasive treatment or diagnostic procedures recently. On physical examination, his temperature was 39.2 °C, his heart rate was 120 bpm and the respiratory rate was 32 breaths per minute. The patient's blood pressure was 120/80 mmHg. A systolic murmur, grade 5 over 6, was heard at the xiphoid appendage without irradiation. Signs of right heart failure were found with edema at ankles, jugular vein turgor and positive harzer sign.

The lungs were clear bilaterally. Peripheral stigmata of IE were absent.

Laboratory findings included hemoglobin of 130g/dl, a white blood cell count of 17, 05 / $\mu$ l, and an erythrocyte sedimentation rate of 80 mm/hour. Urine cytology and culture results were negative. Chest radiography was normal (Figure 1).

Transthoracic Echocardiography (TTE) showed mobile, large vegetation (13mm) of the tricuspid valve with severe regurgitation ( $V_{max}=3, 18$  m/s,  $SOR=0,45$   $cm^2$ ,  $VR=50$ ml) and severe pulmonary hypertension (55 mmHg). The right ventricle was not dilated with preserved function. Other valves appeared normal (Figures 2 and 3).

On the fifth day, we received a report that two out of three blood cultures were positive for Gram-positive cocci, which were later identified as G groupe streptococcus.



Figure 1: Normal chest radiography.



Figure 2: Severe tricuspid valve regurgitation.



Figure 3: Large tricuspid valve vegetation.

The prescribed antibiotics (penicillin A and vancomycin) did not change.

Thoracic angioscan and thoraco abdominal pelvic tomography were normal with no evidence of tumor, infectious or embolic involvement.



Figure 4: Decrease size vegetation after medical treatment.

Viral serology and hormonal assays for possible endocrine tumors were negative.

The patient was treated with injectable penicillin A for a four-week period, with negative blood culture and normal CRP levels at the end; he also continued his treatment orally outside the hospital. Echocardiographic control after one month were performed and showed a complete resolution of the biological signs, a clinical improvement and a decrease in the size of the vegetation, however the patient keeps an important tricuspid regurgitation source of pulmonary arterial hypertension (Figure 4).

### Discussion

Several causes explain the high prevalence of infectious endocarditis in the elderly population:

- Antistreptococcal treatment given to old patients to treat sometimes undocumented infections
- Increased life expectancy thanks to the progress in surgical cure of various heart diseases
- The high incidence of degenerative heart disease and calcifications seen in old age
- Bacteremia induced by various invasive procedures such as dialysis fistulas, pacemakers, intravenous catheters...
- Prosthetic valve replacement [1].

Isolated native non-rheumatic TVE is restricted to a certain group of individuals (intravenous drug users, intra cardiac catheters or in the presence of heart disease), in the absence of such conditions it is rarely diagnosed [6].

TVE represents a rate of 2.5% to 3.1% of all endocarditis according to literature data [7].

After examining 135 cases of IE, a Canadian study found that TVE occurred in 5% of non-addicted patients versus 60% in patients using intravenous drugs [8].

Despite the low rate of isolated TVE among infective endocarditis, it does not remain rare, with a tendency of reaching older subjects

reflected by the mean age of 53.5 years contrasting with a young age among addict patients (mean age of 37 years) [9].

Tricuspid valves in right sided endocarditis are previously normal in contrary to left sided endocarditis who affects a pathological endocardium [10].

Virulent organisms, such as *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Neisseria gonorrhoeae* are found when hemocultures are positive [11]. The microorganism involved in our patient was a group G streptococcus.

The right sided endocarditis is characterized by a minority of specific symptoms, some patients present for a subparous fever, asthenia, anorexia and weight loss misleading the diagnosis in favor of a neoplastic or tuberculous etiology as in our case, especially in an endemic country.

The peripheral stigmata of IE are generally absent, the tricuspid regurgitation murmur appears late, and however the presence of the tricuspid syndrome made of recurrent pneumonia, anemia and microscopic hematuria helps to settle the diagnosis [5].

The prognosis of TVE is excellent with a low hospital mortality rate; this benign condition is successfully treated medically in 80% of cases [12]. Surgery is only needed in minority patients [13].

Misguided diagnosis resulting in delayed treatment lowers survival rates due to the presence of complications. Since, surgical treatment is required when hemodynamic and infectious indications are present with better outcomes compared to left sided acute endocarditis [14-16].

Surgical indications if the clinical state of the patient allows it are: an uncontrolled septicemia despite a well-managed antibiotic treatment, refractory right heart failure, the presence of abscesses, multiple pulmonary embols, vegetation > 20 mm, an associated left endocarditis and fungal endocarditis [17].

Besides the advanced age and comorbidities of our patient none of these indications were present, only medical treatment was prescribed but he still has a severe organic tricuspid regurgitation that may remain under diuretics despite the presence of symptoms because of surgical risks and complications compared to life expectancy.

Two options are available: valve replacement or excision, but the results are controversial in terms of hemodynamic consequences and long-term prognosis [18-20].

In order to restore the function of the tricuspid valve and avoid the implantation of prosthetic equipment, surgeons have recently started tricuspid reconstruction as a therapeutic alternative in case of acute right endocarditis, but the repair of infected tissues remains difficult, resulting in recurrence of endocarditis postoperatively. These experiences are limited and only few data are available in the literature [21].

## Conclusion

In summary, native tricuspid valve endocarditis in elderly is, in the absence of a history of intracardiac catheters, unusual, making the diagnosis delay quite common.

Clinical characteristics in this population are different, sometimes

summarized in a table of chronic illnesses, the portal of entry is not always found, the causative microorganism is often atypical but the evolution remains favorable even in the absence of surgery whose indications remain restricted.

## Acknowledgement

### Consent of the patient

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images. A copy of the written consent is available for review by the editor-in-chief of this journal.

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