



RESEARCH ARTICLE

FALSE POSITIVE FOR PARAGLOTTICNEOPLASM IN AN  
IMMUNOCOMPROMISED PATIENT

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ABSTRACT

**Background:** The authors exhibit a rare case of false positive for paraglottic neoplasia caused by an intense localized inflammatory episode, in cardiac transplanted patient in anti-rejection immunosuppressive therapy.

**Material and method:** A 62-year-old male patient who had undergone cardiac transplantation and accused a sense of a hypopharyngeal foreign body came to our observation. The laryngoscopic examination revealed edema of the left true vocal cord and of the left false vocal cord and tumefaction of the left arytenoid cartilage. A CT was prescribed which showed a probably heteroplasic mass of about 3 centimeters located in the left paraglottic space and extended to the left arytenoid cartilage. We performed operative microlaryngoscopy with biopsy of the left arytenoid region and the left vocal cord on which the edema was treated by a cordal lifting, following the principles of modern phonosurgery

**Results:** Laryngoscopic control one month after surgery highlighted the total resolution of the left vocal chord edema and the previously visible arytenoid tumefaction. In consideration of the normal laryngoscopic picture and of the negative histological findings for neoplasia, it was decided to wait for a further 40 days, at the end of which CT, MRI and PET were repeated which were completely normal with disappearance of the paraglottic neoplasia previously highlighted, even wondering the radiologists.

**Conclusions:** Systemic and localized infections and neoplasms are among the main consequences of anti-rejection therapies and the main causes of morbidity and mortality in transplant patients.

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INTRODUCTION

The success of organ transplants is closely linked to the possibility of modulating the immune response of the recipient, to avoid the reaction of rejection of the organism towards the graft.

None of the currently used immunosuppressive therapy regimens is ideal because they all show only partial efficacy and present a varying degree of toxicity with side effects. Systemic and localized infections and neoplasms are among the main consequences of anti-rejection therapies and the main causes of morbidity and mortality in transplant patients. The authors exhibit a rare case of false positive for paraglottic neoplasia caused by an intense localized inflammatory episode,

in cardiac transplanted patient in anti-rejection immunosuppressive therapy.

METHODS

A 62-year-old male patient who had undergone cardiac transplantation and accused a sense of a hypopharyngeal foreign body came to our observation. The patient had insulin-dependent diabetes mellitus and renal failure in three-weekly dialytic therapy. The patient took immunosuppressive therapy based on Tacrolimus and Mycophenolate. The laryngoscopic examination revealed edema of the left true vocal cord and of the left false vocal cord and tumefaction of the left arytenoid cartilage.

A CT was prescribed which showed a probably heteroplasic mass of about 3 centimeters located in the left paraglottic space and extended to the left arytenoid cartilage (fig.1). The finding

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was confirmed by the MRI and the PET that showed an area with a high SUV (Standardized Uptake Value) suggestive for paraglottic laryngeal neoplasia. We performed operative microlaryngoscopy with biopsy of the left arytenoid region and the left vocal cord on which the edema was treated by a cordal lifting, following the principles of modern phonosurgery.



**Fig 1** TC showing image of probably heteroplasic mass of about 3 centimeters located in the left paraglottic space and extended to the left arytenoid cartilage.

## RESULTS

Histologic examination revealed a massive lymphocytic and granulocytic infiltration at the arytenoid level without evidence of cellular atypia. TC, MRI and PET were again carried out one month after the intervention without any modification of the radiological picture that still showed paraglottic neoplasia. On the other hand, laryngoscopic control one month after surgery highlighted the total resolution of the left vocal chord edema and the previously visible arytenoid tumefaction (fig.2).



**Fig 2** Postoperative control

In consideration of the normal laryngoscopic picture and of the negative histological findings for neoplasia, it was decided to wait for a further 40 days, at the end of which CT, MRI and PET were repeated that were completely normal with disappearance of the paraglottic neoplasia previously highlighted, wondering radiologists.

## DISCUSSION

The case in question is an obvious false positive for paraglottic tumor to CT, MRI and PET determined by a phlegmonous inflammation on a probable viral infectious basis in immunodepressed patient. The patient took Tacrolimus and Mycophenolate. He did not take cortisones. The antibiotic macrolide tacrolimus (1,4), also derived from a fungus such as cyclosporin, inhibits the production of interleukin-2.

Tacrolimus is more potent than ciclosporin, but the side effects of the two drugs are similar and is controversial if it is globally superior to ciclosporin in the treatment of heart transplant patients. Hirsutism, gingival hyperplasia and arterial hypertension, however, are often less pronounced than when cyclosporine is used, whereas the diabetogenic effect appears to be significantly more pronounced.

Mycophenolic acid, which is the active metabolite of mycophenolate (2,3), is the fermentation product of several species of *Penicillium* and, as well as azathioprine, inhibits purine synthesis by reversibly antagonizing the activity of the enzyme inosine monophosphate dehydrogenase. Unlike azathioprine, mycophenolate is able to selectively inhibit lymphocyte activity and proliferation, making it less toxic on other cell lines; mycophenolate therapy would improve the medium-term survival of transplant patients, although without a significant reduction in the number of discards. The efficacy of mycophenolate, therefore, seems to be due to a reduced incidence of late complications, linked to immunosuppression, such as malignant neoplasms and coronary artery disease. Infections are an important cause of morbidity and mortality after cardiac transplantation.

During the postoperative period the immune system is not yet completely inhibited, and therefore in this phase the types of infections detected are similar to those that occur in any population of postoperated and mainly affect the thoracotomy incision, the access points for catheters venous, urinary tract, lungs.

After the postoperative phase, the first 6 months after transplantation are those at greatest risk of infections. Herpes simplex stomatitis occurs more frequently as early as 2-4 weeks after transplantation in patients with previous episodes of herpetic infection or with antibody positivity. In the first 2 months post-transplantation, *Candida* infections may occur, with pneumonia or urinary infections.

The main cause of infection related to a single pathogen is Cytomegalovirus infection. Typically, primary infection occurs 1 to 8 weeks after transplantation, with a prolonged febrile symptomatology for several weeks referred to pulmonary involvement, with atypical lymphocytosis, or to gastritis, or to various types of hepatitis.

Toxoplasmosis after heart transplantation may be the result of a primary infection in the case of a seronegative patient receiving the organ from a seropositive donor. In this condition a prophylaxis with trimethoprim-sulfamethoxazole is implemented. The same chemotherapy is performed in the prophylaxis against *Pneumocystis carinii* infections, one of the most common late pulmonary infections.

Aspergillosis may be a cause of pneumonia or systemic infection; visceral candidiasis may also be the cause of respiratory and urinary tract infections or pericarditis or postoperative mediastinitis. Also the long term transplant patients, due to the chronic immunosuppressive treatment, are particularly exposed to the risk of infections, in particular pneumonia and urinary tract infections. The etiologic agents of pneumonia are generally the same as most of the forms contracted in the extra-hospital environment: *Streptococcus*

pneumoniae or Haemophilus influenzae. However, in these patients a high level of clinical suspicion should be maintained also with respect to other microorganisms such as Nocardia, Mycobacteria, and in particular Pneumocystis carinii.

Neoplasms are an important cause of long-term death, estimated at 12% per year for heart transplant patients. Skin tumors, lymphoproliferative neoplasms and tumors of the gynecological sphere are the most frequent cases in transplant patients. The possibility of developing a neoplasm must always be kept in mind in these patients; for this reason the radiological results of the patient in question strongly alarmed the doctors.

## CONCLUSIONS

The CT is a diagnostic method used since 1975, which, through the use of ionizing radiation (X-ray) reproduces the human body in sections processed by a computer. The intravenous injection of an iodine-based contrast medium improves the definition of the images, enhancing the contrast of an organ, of a lesion or of a structure.

PET is a method introduced after the mid-90s, able to produce body images through tracers, marked with positron radionuclides, injected intravenously, which are concentrated within the tissues according to their metabolic activity.

The radiations emitted by the radionuclides are detected by a dedicated tomograph. The CT, therefore, provides morphological information of the studied anatomical districts, while PET provides functional and metabolic information.

Recently, PET-CT tomographs are used that allow the fusion of the two diagnostic modalities, providing both functional and morphological information, the latter at low definition, in a single examination.

A positive PET does not necessarily mean cancer (5,6,7,8,9,10). It only indicates areas of increased metabolic activity. As with all tests, the result is evaluated in the overall clinical picture. It is not exceptional to find lymph node captures for banal inflammations with no clinical significance. In the case of the patient in question the false positive is due to a laryngeal inflammatory outbreak with lymphoid and granulocytic infiltration.

The patient had already multiple inflammatory episodes affecting the upper airways as an abscess of the nasal pyramid with partial destruction of the same and episodes of otitis media.

The patient also suffered from diabetes mellitus which could alter the PET results and in some cases was considered a contraindication to the PET performance.

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