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Utility of 18F-FDG PET/CT in the diagnosis and follow-up of a patient with eosinophilic granulomatosis with polyangiitis and large vessel vasculitis

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Description

Fifty-six-year-old female with history of aggressive Churg-Strauss Vasculitis pr3-ANCA in remission since December-2017 and sudden appearance of headache, dizziness, and signs of VI cranial nerve palsy. MRI brain study showed a cavum tumour, extended to the right carotid space, skull-base and intracranial space suggesting various differential diagnoses (carcinoma, pseudotumor, lymphoma or metastasis). Two-negatives-cavum biopsy for malignancy were obtained. PET/CT suggested the final diagnosis showing intense metabolic uptake of the cavum lesion, associated to signs of vasculitis of the thoracic and abdominal aorta. We discuss the utility of 18F-FDG-PET/CT in the diagnosis and follow-up of Eosinophilic Granulomatosis with Polyangiitis Disease (EGPA).

Declarations

Author contributions: All the authors have accepted responsibility for the entire 3.0 content of this submitted manuscript and approved submission.

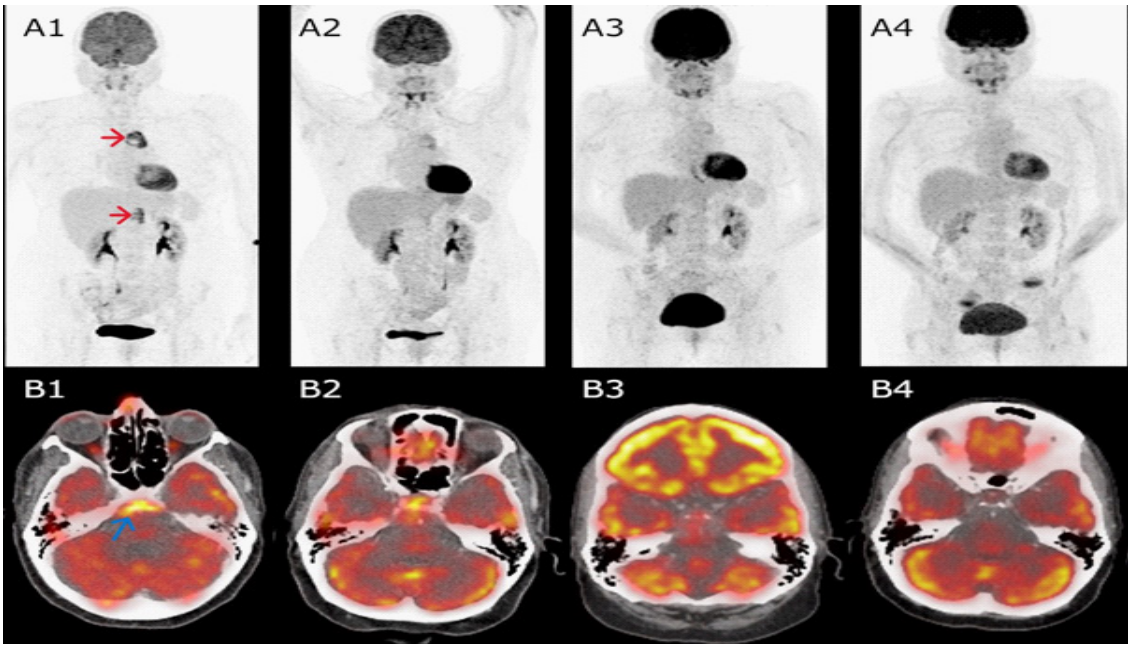

Figure 1: MRI axial images T1 **(A)** and T2 **(B)** showed a cavum tumour extended to the right carotid space, skull base and intracranial space (red arrows). Lesion showed enhancement on contrast-enhanced T1-weighted sequence and appeared hypointense on T2-weighted sequence. Several differential diagnoses were proposed including carcinoma, pseudotumor, lymphoma and metastasis. Two cavum biopsies were performed, negative for malignancy. Pr3-ANCA were negative at this moment. 18F-FDG PET/CT study was requested for metabolic assessment.

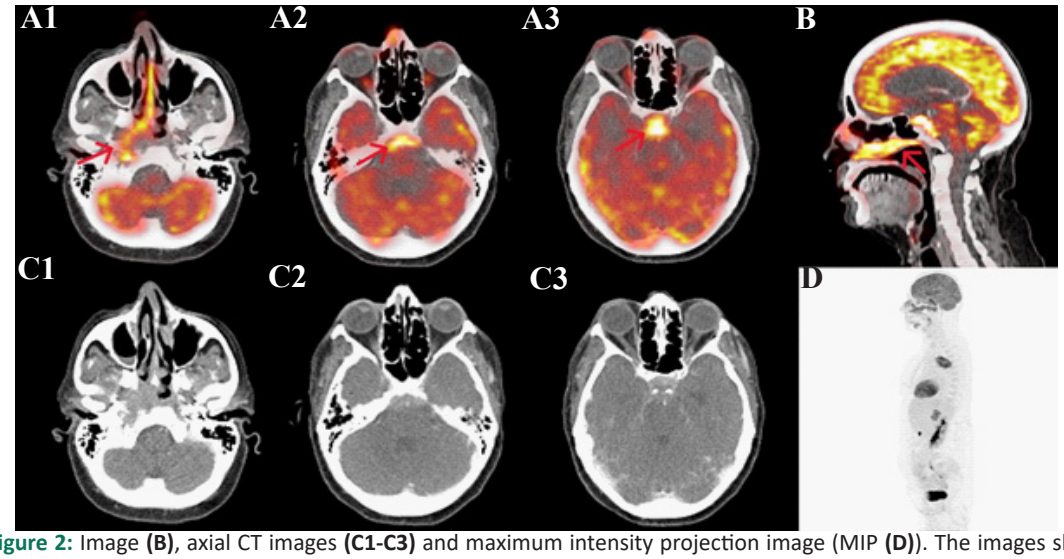

Figure 2: Image **(B)**, axial CT images **(C1-C3)** and maximum intensity projection image (MIP **(D)**). The images show a hypermetabolic lesion located into the posterolateral right margin of the nasopharynx extended to the right carotid space, nasal septum, skull base (red arrow) and intracranial space. CT images show the morphologic contrast enhancement of the lesion.

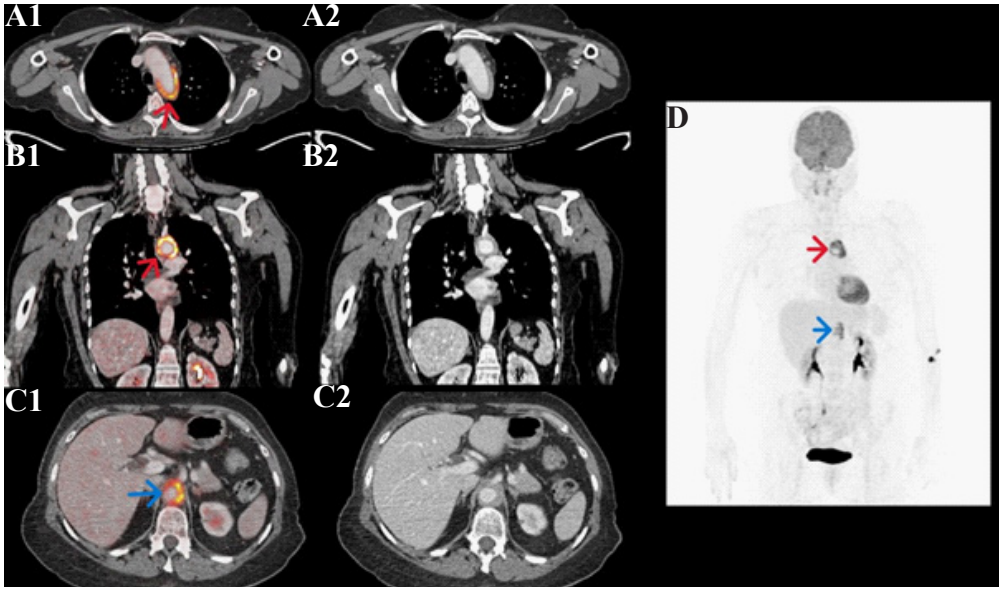

Figure 3: Axial and coronal fusion and CT images of the thoracic and abdominal region **(A-C)** and MIP **(D)** from the initial 18F-FDG PET/CT study also showed a focal wall hypermetabolic thickening of the aortic cross/descending aorta and of the abdominal aorta, above the renal vessels. Due to the clinical context of the patient and the metabolic image findings, it was oriented as a relapse of EGPA. Induction treatment with Cyclophosphamide and Corticosteroids bolus was started, with progressive improvement of symptoms and almost total recovery of VI cranial nerve palsy [1]. Antineutrophil-Cytoplasmic-Antibodies (ANCA) Associated Vasculitis (AAV) is characterized as inflammation of small to medium-sized vessels and encompasses several clinicopathologic entities including EGPA. This is a systemic necrotizing vasculitis that presents with the triad of necrotizing vasculitis, asthma, and eosinophilia [2-6]. There is not always a correlation between ANCA levels and clinical activity of the disease [7]. Large-vessel vasculitis in AAV is very uncommon, with literature limited only to case reports. The pathogenic way AAV affects large vessel walls is not clear and different factors has been described (infection, environmental factors, genetic factors, certain drugs), however, there is also a possibility of an overlap between the two diseases [8,9].

Ethical approval: The paper has been submitted with full responsibility, following due ethical procedure and with the approval of the ethical committee from our institution (data 06/21/2022).

Informed consent: The participants signed consent regarding publishing their data (and/or photographs).

Data availability statement: The data that support the findings of this study are available on request from the corresponding author, MN. The data are not publicly available due to it contains information that may compromise the privacy of the participant.

Conflicts of interest: This work did not receive any specific financial award from funding agencies in the public, commercial or non-profit sectors. None of the authors has a financial or personal relationship with other people or organizations that could inappropriately influence or bias the content of the paper. The funding organization (s) played no role in the study design; in the collection, analysis, and interpretation of data; in the writing of the report or in the decision to submit the report for publication.

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