

Favorable outcome in patients with FUO whose 18fluoro-deoxyglucose PET finding is non-diagnostic

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Background: 18fluoro-deoxyglucose (18FDG) positron-emission tomography (PET) is a useful method for identification of causes of fever of unknown origin (FUO). However, treatment is not known for patients with FUO whose 18FDG-PET finding is non-diagnostic. We focused on analyzing treatment and outcomes in these patients. **Method:** Patients with FUO who underwent 18FDG-PET were retrospectively identified from January 2016-June 2017. We usually recommend 18FDG-PET as a second-level work-up for FUO. Images were independently read. Variables such as final diagnosis, treatment regimens, and outcomes were researched and described. **Results:** A total of eight patients with FUO, complaining non-specific symptoms such as fever, chills, myalgia and headache, underwent 18FDG-PET during the study period. Of these, two patients were diagnosed with microscopic polyangitis and Kikuchi's disease and a patient was transferred to another hospital. Of five patients whose diagnoses were not confirmed, four patients received non-steroidal anti-inflammatory drug and/or low dose steroid and their symptoms disappeared. **Conclusion:** Outcome of patients with FUO whose 18FDG-PET finding is non-diagnostic seems favorable. Randomized controlled trials should be conducted to establish PET-guided treatment strategies for FUO.

Table 1. Clinical characteristics of patients with fever of unknown origin who underwent 18fluoro-deoxyglucose PET

Case No	Age Sex	Symptoms	PET finding	Other abnormal findings	Treatment	Final Diagnosis	Follow-up duration	Outcome
1	76 F	General weakness Fever Rash	Mild and diffuse hypermetabolism in the medium sized vascular wall of upper and lower extremity; probable vasculitis. Diffuse and mild FDG uptake in the skeletal system. Slightly asymmetric mild FDG uptake of skin and muscle in the left foot and left lower leg.	Positive ANCA/ASO Inducible leukocytoclastic vasculitis in skin biopsy	Naproxen 500mg po bid plus prednisolone 10 mg po qd	Microscopic polyangitis by renal biopsy	8 months	Maintain NSAID steroid
2	73 F	Fever Sore throat	Hypermetabolic LNs in bilateral neck, axilla, mediastinal, retroperitoneal, para-aortic, pancreatic, aortocaval, pelvic and both iliofemoral LNs. Heterogeneously increased uptake in the T1-L1 vertebrae, T12-L1, and left iliac wing. Severely increased uptake in the spleen.	Pericarditis, peritonitis, keratitis	Naproxen 500mg bid plus methylprednisolone 4 mg qd	Kikuchi's disease by LN biopsy	8 months	Maintain steroid due to suboptimal anti-infective efficacy
3	60 M	Fever, Chills, Severe pain	Diffuse uptake in large bones	Epididymo-orchitis Both arms superficial thrombophlebitis	Debridement 300mg po tid	Not categorized	1 month	Resolved
4	60 M	Fever	Coarse and heterogeneous hypermetabolism in the whole axial skeleton. Slightly coarse soft tissue uptake pattern in the abdomen, by determining clinical significance. A small and mild hypermetabolism in the posterior aspect of both distal femur	Not specific	None	Not categorized	1 month	Self limited
5	76 F	General weakness, Fever	Mild FDG uptake along the medium sized vessel in the upper and lower extremities	Not specific	Acetaminophen 1000mg po bid	Not categorized	1 month	Resolved Maintain NSAID
6	73 M	Fever, Chills, Myalgia	Diffuse hypermetabolism in the cervical spinal cord	Depressive spinal lesion and osteophyte with disc space narrowing in cervical spine MRI	Debridement 300mg po tid	Not categorized	4 months	Resolved Maintain NSAID
7	60 M	Fever, Headache	Mild hypermetabolism along the medium to large vessel walls involving the thoracolumbar vertebrae, aortic branches, both costal, both iliac and both femoral vessels. Focal hypermetabolism around the both hip joints and ischial tuberosity	Not specific	Debridement 300mg po tid	Not categorized	N/A	Transferred to other hospital
8	64 F	Fever	Mild hypermetabolism along the both right axilla and both lateral chest vessels, more prominent on the right side. Focal hypermetabolism in the left femoral vessel.	Not specific	Debridement 300mg po tid plus prednisolone 10 mg po qd	Not categorized	3 months	Resolved Maintain steroid NSAID

Infected total hip replacement after PROSTALAC by Mycobacterium tuberculosis

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The incidence rate of prosthetic joint infection after total hip replacement is 1.0~2.0%. But prosthetic joint infection due to Mycobacterium tuberculosis (MTB) is rare and has been reported as case series. In a retrospective study, only 0.3% of prosthetic joint infection were due to MTB. But there is no report of MTB infection at prosthetic joint after PROSTALAC implantation in Korea. A 54 year-old woman was admitted to the hospital with left hip pain for 1 year. 5 years ago, she underwent left total hip replacement surgery. Prosthetic joint infection was developed 1 year after surgery. Culture of pus grew methicillin sensitive Staphylococcus aureus. Implantation of prosthesis with antibiotic-loaded acrylic cement (PROSTALAC) on left hip joint was done and antibiotics was administered. Left hip pain was aggravated 4 years after PROSTALAC implantation. So she was admitted to our hospital and revision total hip arthroplasty was performed due to left hip PROSTALAC implantation site infection. Intraoperative tissue pathology revealed granulomatous inflammation with caseous necrosis and MTB nested PCR was positive. Antituberculous therapy was started and clinical improvement was observed after antituberculous medication.