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Utility of FDG-PET CT Directed Splenic Biopsy in Lymphoma Diagnosis

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INTRODUCTION

Lymphoma is the fifth most common type of cancer in U.K. Therapy requires an accurate tissue diagnosis in all cases. Variegated clinical presentation can cause diagnostic difficulties, especially in those people without accessible lymph nodes. We report on the utility and safety of FDG-PET-CT- planned splenic core biopsy in people suspected of having lymphoma.

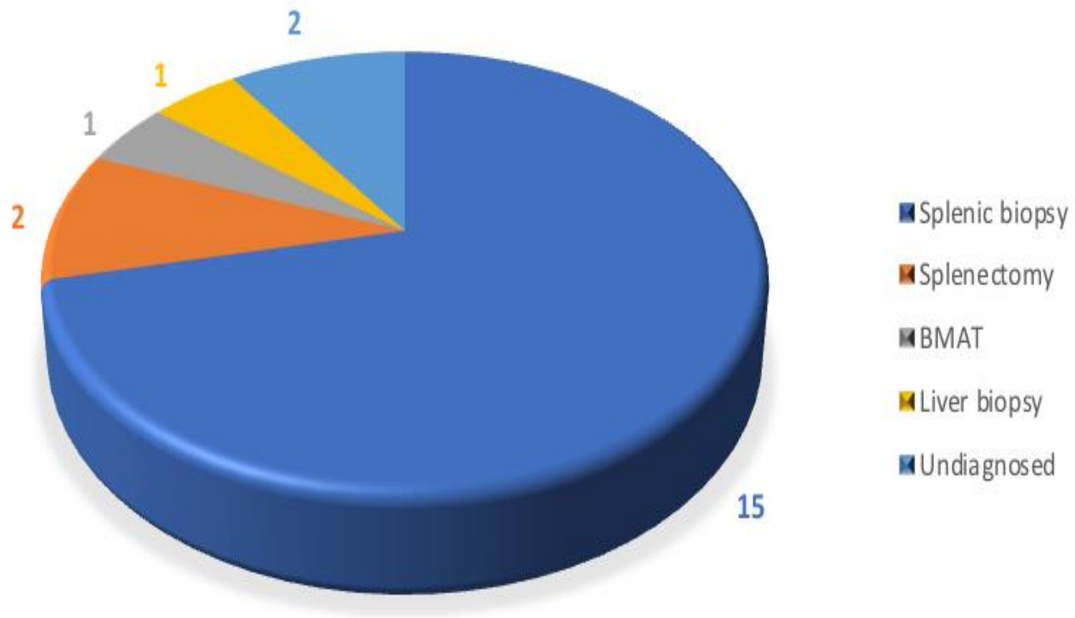
METHODS

We retrospectively identified people who underwent splenic core biopsy between 2009-2019. We also collected data on FDG-PET-CT scan patterns observed prior to splenic biopsy. We determined the diagnostic yield by reviewing histology reports and the safety of the procedure by looking at the complications reported on an electronic record.

RESULTS

Twenty one patients were identified. All had imaging performed which failed to show any accessible tissue for diagnosis, except the spleen. Prior investigation included bone marrow(14 patients) and skin biopsy (1).

Fifteen (diagnostic yield 71.5%) achieved a diagnosis following splenic biopsy. Two of the 6 without a diagnosis following splenic puncture underwent splenectomy. Liver and bone marrow biopsies were performed on 1 patient each subsequent to splenic biopsy (see chart below)

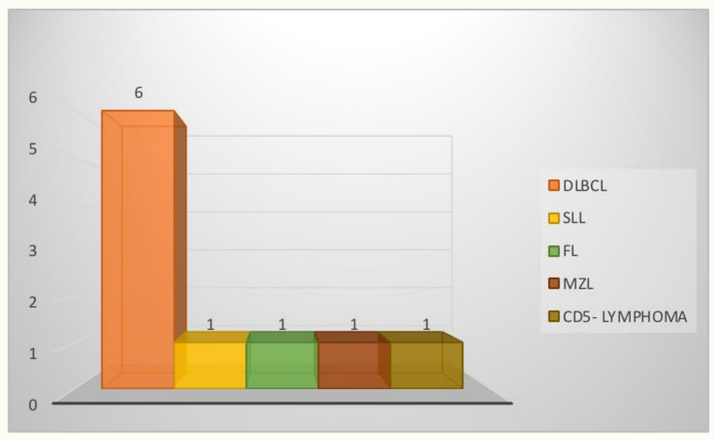


Ten of the fifteen patients achieving a diagnosis were found to have lymphoma, three had fungal infection, one had sarcoidosis and one turned out to be infection with mycobacterium tuberculosis.

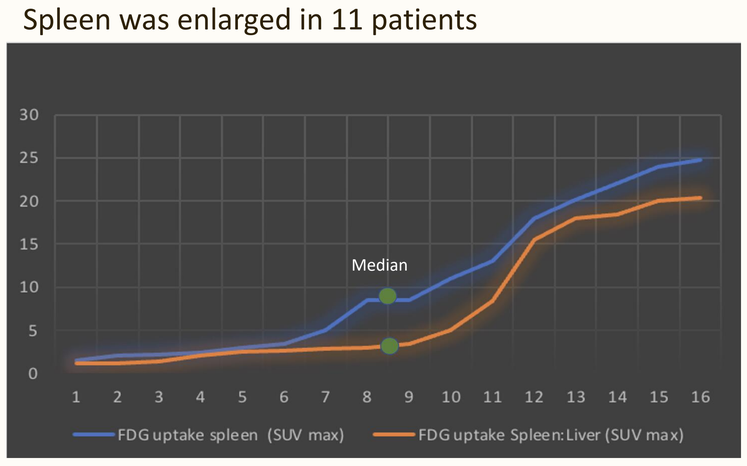
Subsequent follow up of those who were undiagnosed after splenic biopsy demonstrated lymphoma (3 patients) and polycythemia Vera (1 patient).
See table below:

Histopathology of splenic biopsy	Final diagnosis	No. Of cases
Lymphoma	Lymphoma	10
Granulomatous inflammation	Fungal infections	3
	Mycobacterium tuberculosis	1
	Sarcoidosis	1
Non diagnostic	Lymphoma	3
	Polycythaemia vera	1
	No diagnosis	2
Total		21

Graphical representation of Subtypes of Lymphoma post Splenic Biopsies.



FDG PET-CT scans were performed on 16 patients who had splenic biopsies. All demonstrated abnormal findings in the spleen.
Spleen was enlarged in 11 patients



FDG Uptake	Median
FDG uptake spleen (SUV max)	8.5
FDG uptake Spleen:Liver (SUV max)	3.2

Among the 16 patients with positive PET –CT findings we established a diagnosis in 14 (87.5%) after further splenic biopsy (12 patients) and splenectomy (2 patients). 2 people with an abnormal PET (12.5%) were undiagnosed after a positive PET and splenic procedure.

Safety of splenic biopsy, there were no procedure related deaths; 2 (13.3%) developed peri-splenic haematomas which were managed conservatively.

CONCLUSIONS

Splenic biopsy is safe and has a high diagnostic yield. Although FDG PET-CT scanning is a useful modality to guide targeting of the spleen and to ensure that no other, safer target is available, there is no level of avidity which can be said to represent lymphoma. It can also help prompt splenic biopsy in those with normal spleen size.
We recommend FDG PET-CT and consideration of splenic biopsy in those people with suspected lymphoma, an abnormality on FDG PET-CT, no accessible lymph node and a normal bone marrow biopsy.

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