

Nodular Lymphocyte Predominant Hodgkin Lymphoma in a Patient with Progressive Transformation of Germinal Centers

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Abstract

Objectives: (1) Present a rare case of head and neck nodular lymphocyte predominant Hodgkin lymphoma (NLPHL) in a patient with history of progressive transformation of germinal centers (PTGC). (2) Review literature of head and neck PTGC and NLPH

Study design: Discuss case report and review current literature on PTGC and NLPHL of head and neck

Methods: Retrospective chart review was performed including review of CT imaging and pathology. A PubMed literature review was performed using “PTGC”, “progressive transformation of germinal centers”, and “nodular lymphocyte predominant Hodgkin lymphoma” as keywords.

Results: Our patient is a 39 year old female with a history of right parotid and neck progressive transformation of germinal centers (PTGC) without lymphoma. Four years later, she presented with recurrence of right parotid and neck lymphadenopathy, fatigue, and weight loss. Excisional biopsy of a level II cervical lymph node was performed. Pathology results were consistent with NLPHL. Literature review revealed rare reports of this condition including one series showing 2/206 NLPHL patients having preceding PTGC.

Conclusions: Nodular lymphocyte predominant Hodgkin lymphoma is an uncommon variant of Hodgkin lymphoma. PTGC can develop prior to, concurrent with, or after the diagnosis of NLPHL. In this case, we present a rare patient with a NLPHL of right parotid and neck with history of PTGC of same location excised four years prior. Knowledge of her previous diagnosis of PTGC raised our concern for lymphoma, influenced our surgical management, and spared the patient additional surgery with risk of facial nerve injury inherent in re-operative parotidectomy.

Introduction

- PTGC typically presents with asymptomatic lymphadenopathy (1)
- PTGC first reported by Lennert and Muller-Hermelin (1)
- Reactive lymphoid hyperplasia with a predominantly follicular pattern (1)
- Characterized by expansion of the mantle zone lymphocytes into adjacent sinusoids and germinal centers causing loss of distinction between mantle zone and germinal center (2)
- PTGC can be mistaken for malignant processes such as nodular lymphocyte predominant Hodgkin’s lymphoma (NLPHL) and follicular lymphoma (3)

Methods

- Retrospective chart review was performed. Pre-operative CT scans were reviewed. Diagnosing pathologist performed immunohistochemistry for CD3, CD20, CD21, PAX5, BCL-6, CD15, CD30, and EMA.
- A PubMed literature review was performed using “PTGC”, “progressive transformation of germinal centers”, and “nodular lymphocyte predominant Hodgkin lymphoma” as keywords.

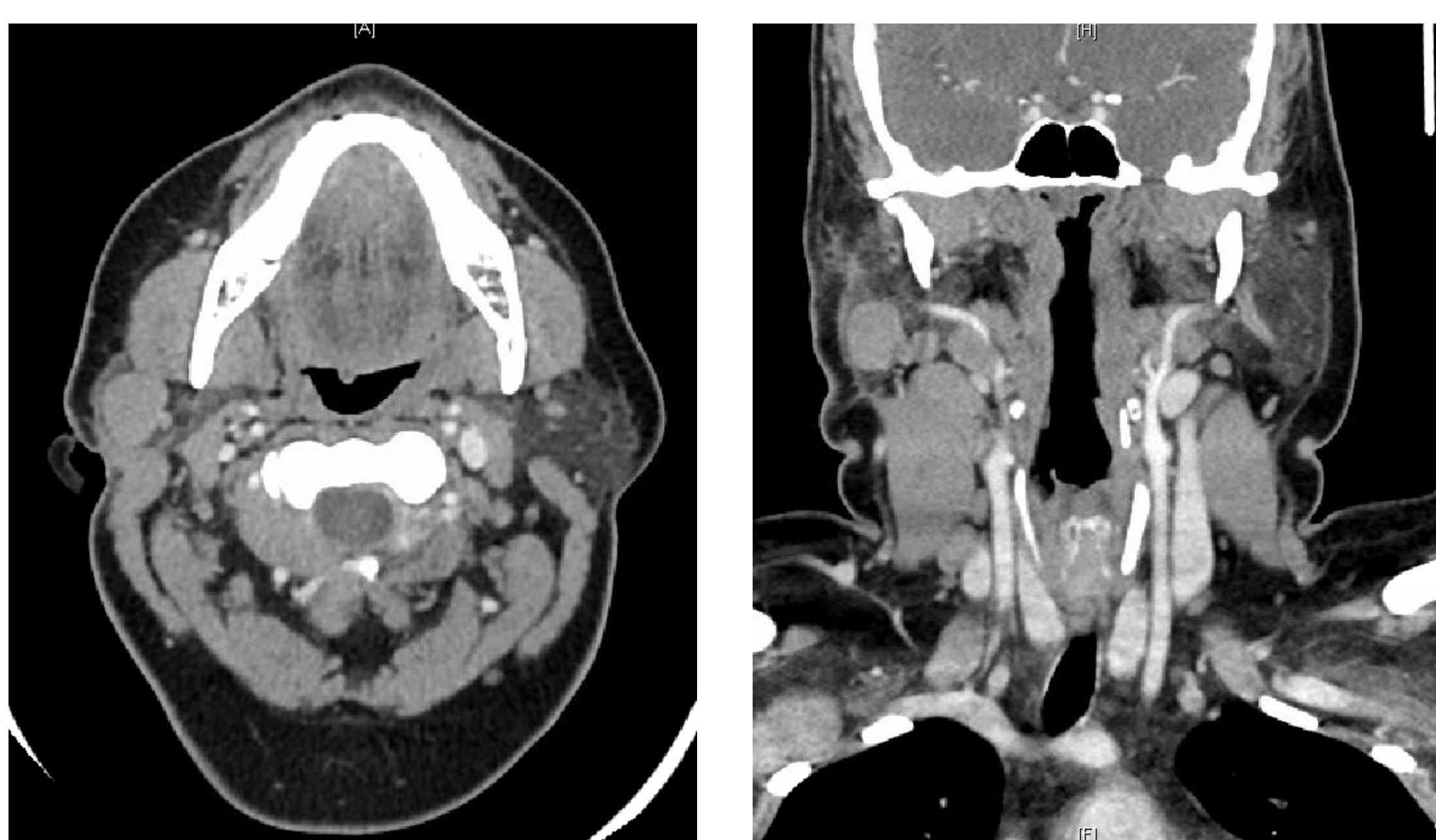


Figure 1- A: Axial contrasted CT image showing right parotid lymph node B: Coronal contrasted CT image showing right parotid lymph node and right cervical adenopathy

Results

- Case Report: 39 year old female
- Previous history of progressive transformation of germinal centers (PTGC) involving a right parotid and neck, diagnosed on superficial parotidectomy and neck dissection
- No lymphoma or other malignancy reported on pathology
- Presented four years later with right parotid mass and neck lymphadenopathy, fatigue, and weight loss. Facial nerve was intact bilaterally.
- Multiple FNA failed to establish diagnosis
- Discussed revision parotidectomy with neck dissection vs excisional biopsy with frozen section
- Excisional biopsy performed of a level II cervical lymph node performed
- Pathology revealed NLPHL in a nodule, adjacent to areas of PTGC

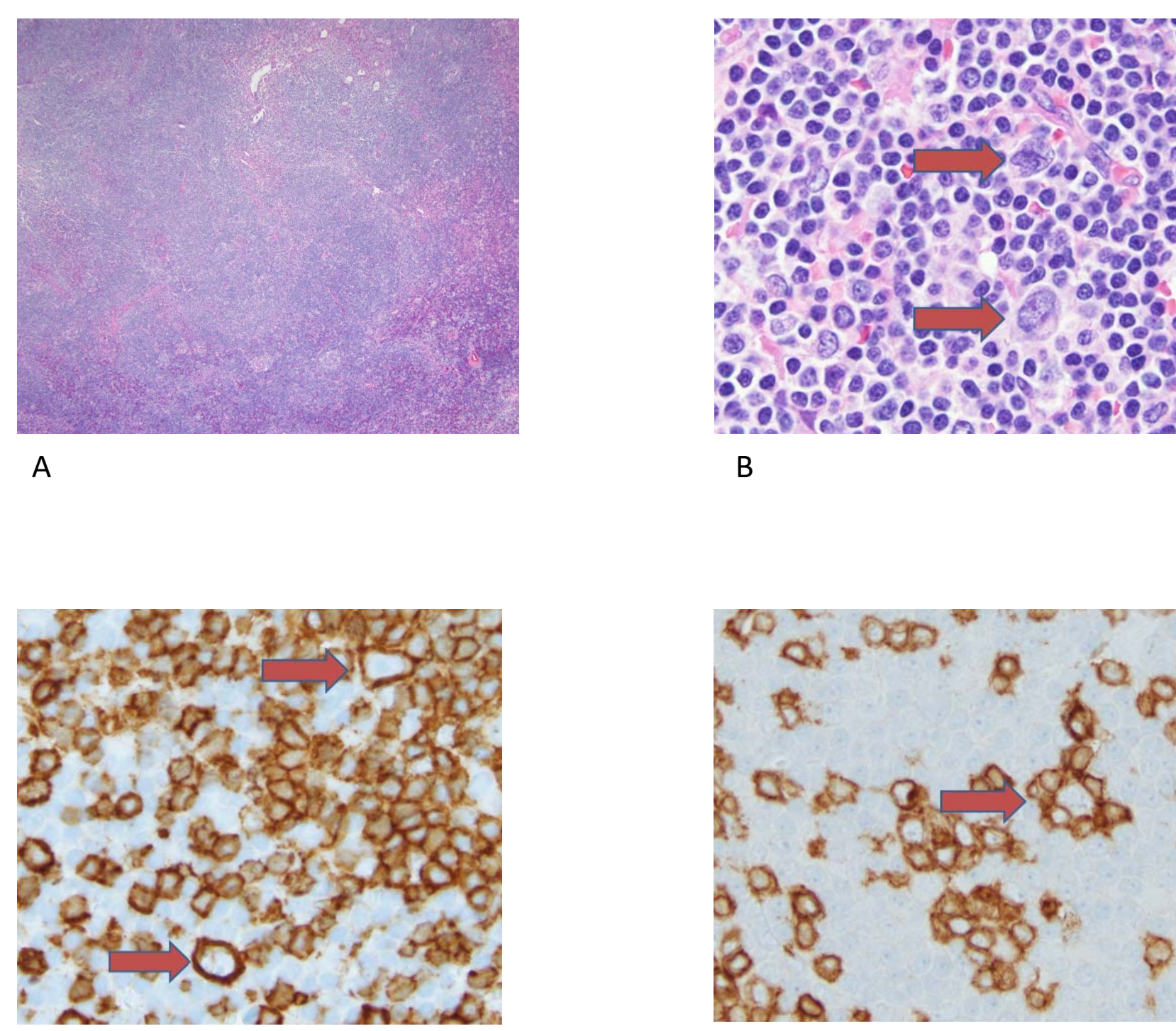


Figure 2- A: Prominent nodule in background of lymphoid tissue B: H & E slide 400x showing “popcorn” lymphocyte predominant cells C: “popcorn” cells exhibit positive staining for CD20 D: CD3 positive T-cells form rosettes around “popcorn” cells

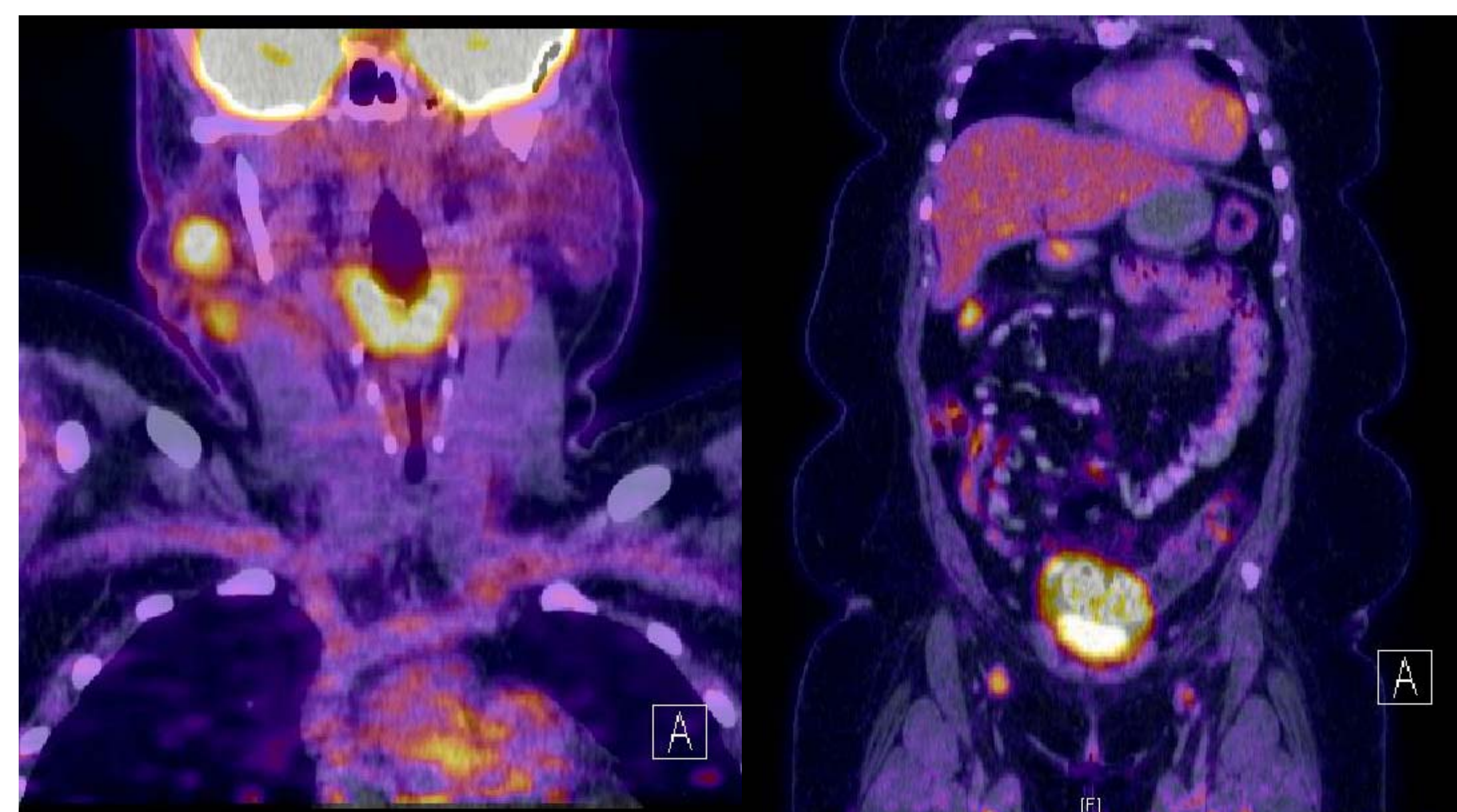


Figure 3- A: Post-operative coronal fused head and neck PET-CT showing FDG-avid right parotid mass with residual hypermetabolic cervical adenopathy B: Post-operative coronal fused whole body PET-CT illustrating hypermetabolic right inguinal lymphadenopathy

Discussion

- PTGC is a proliferation of lymphoid tissue which often presents in the head and neck as adenopathy. (1)
- PTGC is not felt to represent a pre-malignant condition (5)
- However, it can precede, antecede, or present concurrently with NLPHL, and is seen in at least 15% of NLPHL cases. (4)
- NLPHL contains nodules composed of many small B lymphocytes and variable numbers of larger atypical cells with lobulated nuclei that resemble kernels of popped corn, known as lymphocyte-predominant cells (LP cells) or popcorn cells (6)
- A parotid mass with lymphadenopathy in an adult patient necessitates evaluation. In this patient, knowledge of her previous diagnosis of PTGC influenced our surgical decision making, sparing the patient the potential morbidity of revision parotidectomy when FNA did not establish a diagnosis.

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