

Extent of invasion (Core)

Parathyroid carcinoma and parathyroid neoplasms of uncertain malignant potential may be difficult to diagnose on histologic examination. The extent of tumour involvement has been proposed as one critical factor in diagnosis. Many, but not all, tumours show a fibrotic capsule with invasion. By definition a parathyroid neoplasm of uncertain malignant potential may not invade other structures (i.e., cannot involve adipose tissue, muscle or adjacent organs as these features are restricted to parathyroid carcinomas). Documentation of tumour extent may also imply severity of local disease however studies correlating tumour extent with prognosis are conflicting.¹⁻⁵ Rarely a parathyroid carcinoma may show lymphovascular involvement, a true hallmark of a carcinoma, with minimal to no localized invasive growth. As parathyroid neoplasms are very vascular caution in making the diagnosis of carcinoma is warranted in cases where an invasive growth pattern is not encountered. Overall, the documentation of the presence and extent of local tissue involvement in parathyroid carcinomas is inconsistently presented in the literature for this rare disease. The importance of including these findings in this dataset is for data collection that may aid in future stratification of these tumours for staging and outcome.

References

- 1 Talat N and Schulte KM (2010). Clinical presentation, staging and long-term evolution of parathyroid cancer. *Ann Surg Oncol* 17(8):2156-2174.
- 2 Silva-Figueroa AM, Hess KR, Williams MD, Clarke CN, Christakis I, Graham PH, Grubbs EG, Lee JE, Busaidy NL and Perrier ND (2017). Prognostic Scoring System to Risk Stratify Parathyroid Carcinoma. *J Am Coll Surg* 224(5):908-987.
- 3 Erovic BM, Goldstein DP, Kim D, Mete O, Brierley J, Tsang R, Freeman JL, Asa SL, Rotstein L and Irish JC (2013). Parathyroid cancer: outcome analysis of 16 patients treated at the Princess Margaret Hospital. *Head Neck* 35(1):35-39.
- 4 Stojadinovic A, Hoos A, Nissan A, Dudas ME, Cordon-Cardo C, Shaha AR, Brennan MF, Singh B and Ghossein RA (2003). Parathyroid neoplasms: clinical, histopathological, and tissue microarray-based molecular analysis. *Hum Pathol* 34(1):54-64.
- 5 Digonnet A, Carlier A, Willemse E, Quiriny M, Dekeyser C, de Saint Aubain N, Lemort M and Andry G (2011). Parathyroid carcinoma: a review with three illustrative cases. *J Cancer* 2:532-537.