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Clear cell lesions of the head and neck: the spectrum of histological features.

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Head and neck clear cell lesions are rare with a diverse differential including Hyalinising Clear Cell Carcinoma (HCCC), Clear Cell Odontogenic Carcinoma (CCOC), and clear cell variants of mucoepidermoid carcinoma (MEC) and metastatic renal cell carcinoma (RCC). In addition, Sclerosing Odontogenic Carcinoma (SOC) (a recently described lesion) can show clear cell change. *EWSR1-ATF1* translocations in HCCC and CCOC can help differentiate these from the other clear cell lesions.

Objective- To compare histological and morphological features of clear cell lesions.

Methods- Clear cell lesions including CCOC, SOC, HCCC, MEC and RCC were compared using H&E examination, immunohistochemistry and fluorescent in situ hybridisation (FISH).

Results- All showed varying degrees of clear cell change, and stromal sclerosis. HCCC was not as infiltrative as SOC or CCOC, and showed focal mucin globules. SOC had perineural infiltration, and distinct radiological appearances with bone and tooth resorption. CCOC and HCCC showed the *EWSR1* rearrangement, but SOC, MEC and RCC were negative.

Conclusions- Clear cell change and stromal hyalinisation can be variable however presence of mucin, inductive change, perineural invasion and radiological correlation can aid diagnosis. Molecular testing is the gold standard and supplements immunohistochemistry in diagnosing HCCC and CCOC, and excluding RCC or MEC.

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