An Unusual Diagnosis in FNA Parotid Gland

Head and neck FNAC

Dr Joey Hamilton Consultant Pathologist

Pathlinks, Northern Lincs & Goole NHS Trust

Susan Smith Advanced Practitioner

Pathlinks, Northern Lincs & Goole NHS Trust

Clinical information

- 76 year old male.
- History of skin cancer Squamous cell carcinoma and a 'collision tumour' (well differentiated squamous cell carcinoma, nodular basal cell carcinoma).
- Asymptomatic lump to right face for 7 months.
- Examination showed a 3 cm fixed firm non-tender lump within the right parotid.



Ultrasound and FNA findings

- Palpable lump present.
- 35x18x30mm hypoechoic lesion within the parotid gland.
- Appearances suggestive of a pleomorphic adenoma.
- Ultrasound guided FNA of the right parotid performed.
- Two passes first pass air dried slides prepared and second pass placed into Cytospin fluid.





Cytology shows a cellular sample composed of highly malignant cells with scant cytoplasm.



- Many cells show a neuroendocrine morphology
- 'Salt and pepper chromatin' is evident
- Nucleoli are inconspicuous.









Nuclear moulding is seen, especially prominent on the air dried slides.







• Numerous mitotic figures are identified.



- The malignant cells are positive for Synaptophysin, and CD56.
- They are negative for Chromogranin, TTF1, CK20, LCA and P40 (weak).
- Ki67 proliferation index is >50%.
- Overall, the features are consistent with a metastatic neuroendocrine carcinoma.
- Is there a previous history?
- Clinical and radiological correlation with MDT discussion needed to identify primary.



Positive cytokeratin and neuroendocrine markers.

CD56 x10



Cytology

Synaptophysin x10





British Association for Cytopathology





High proliferation rate – above 50%.



Conclusions so far...

- Classical features of a neuroendocrine tumour.
- However, the parotid is an unusual site for a primary neuroendocrine tumour.
- Is this a metastasis from another primary site?
- Negative staining with TTF1 makes lung origin less likely (though 5-10% of primary small cell lung carcinomas are TTF-1 negative).
- Discussion is required at MDT.



Further investigations

- CT neck and chest shows an enhancing lesion in the superficial lobe of right parotid. No enlarged lymph nodes or metastatic disease.
- Discussion at head and neck MDT differential of Merkel cell skin lesions.
- CK20 negative staining makes Merkel cell carcinoma unlikely, however aberrant IHC staining profiles do occur.
- Referral to dermatology to check for any skin lesions none of note found.
- Together the clinical impression, and lack of CK20 staining mean a Merkel cell carcinoma is largely excluded.



Final conclusion

- Additional IHC performed. CDX2 and Calcitonin are both negative.
- IHC has excluded lung, gastrointestinal and thyroid as potential primary sources.
- Full body PET CT showed no evidence of nodal or soft tissue mass lesion in the chest, abdomen or pelvis. Metastasis from another site is excluded.
- This lesion represents a primary neuroendocrine carcinoma of the parotid gland.



Histology outcome

- Excision of parotid reveals a well circumscribed intraparenchymal tumour composed of sheets of small blue tumour cells.
- Nuclei are hyperchromatic and stippled with foci of nuclear moulding.
- Brisk mitotic activity including atypical mitoses.
- IHC confirms a primary poorly differentiated salivary gland carcinoma of small cell neuroendocrine type. pT2NxR0



Key Learning Points

- Neuroendocrine carcinomas found in the parotid are more frequently metastases from other sites rather than primary salivary carcinomas.
- Primary salivary gland neuroendocrine tumours are extremely rare with the majority occurring in the parotid gland.
- Neuroendocrine tumours share morphological and immunocytochemistry characteristics despite differences in site of origin.
- Merkel cell carcinoma can metastasise to the parotid so may be challenging to differentiate from a primary lesion.
- Studies suggest around 75% of small cell carcinomas of salivary origin show CK20 positivity².
- Discussion with clinicians and radiologists at MDT ensures all information pertaining to the case is available for review.
- Correlation with clinical and radiological information is paramount!



References

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