Internal carotid artery haemorrhage in a patient with a radiotherapy treated pituitary macroadenoma with sphenoid extension and osteonecrosis

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Background

- 74 year old female

- 1994- secondary amenorrhoea, prolactin 30,000 mu/L

- CT -> pituitary macroadenoma, extension to the sellar floor and the sphenoid bone, no chiasm compression

- 1995 - external beam radiotherapy as lesion unchanged in size despite dopamine agonist and prolactin suppression

- Remained well for 23 years

- 2017 - Routine CT - no recurrent tumour but noted destruction of sellar floor

- PMHx- COPD, AF on apixaban

Re-presentation

- 2018 presented acutely- severe epistaxis

- Unable to control with conservative measures, ongoing significant haemorrhage

- ENT theatre - operative haemostasis

  - bleeding from the right sphenoid sinus noted

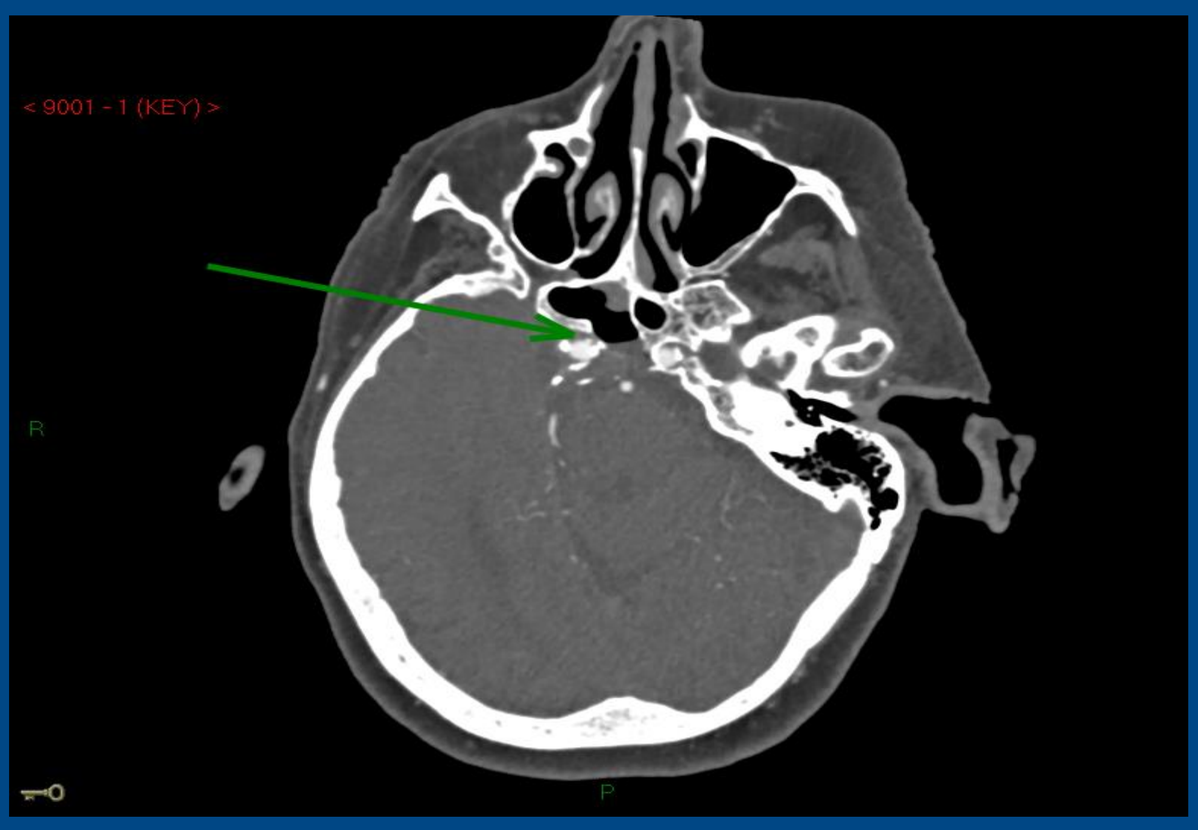

Figure 1: CT angiography- sphenoid necrosis and right ICA exposure

Investigations and Results

- CT angiography (intracranial)

  - bony defect right sphenoid sinus in keeping with osteoradionecrosis

  - exposure of the right internal carotid artery

  - features of recent haemorrhage

- Final diagnosis

  - sphenoid osteonecrosis

  - life threatening haemorrhage from exposed internal carotid artery

- Significant co-morbidity- managed conservatively

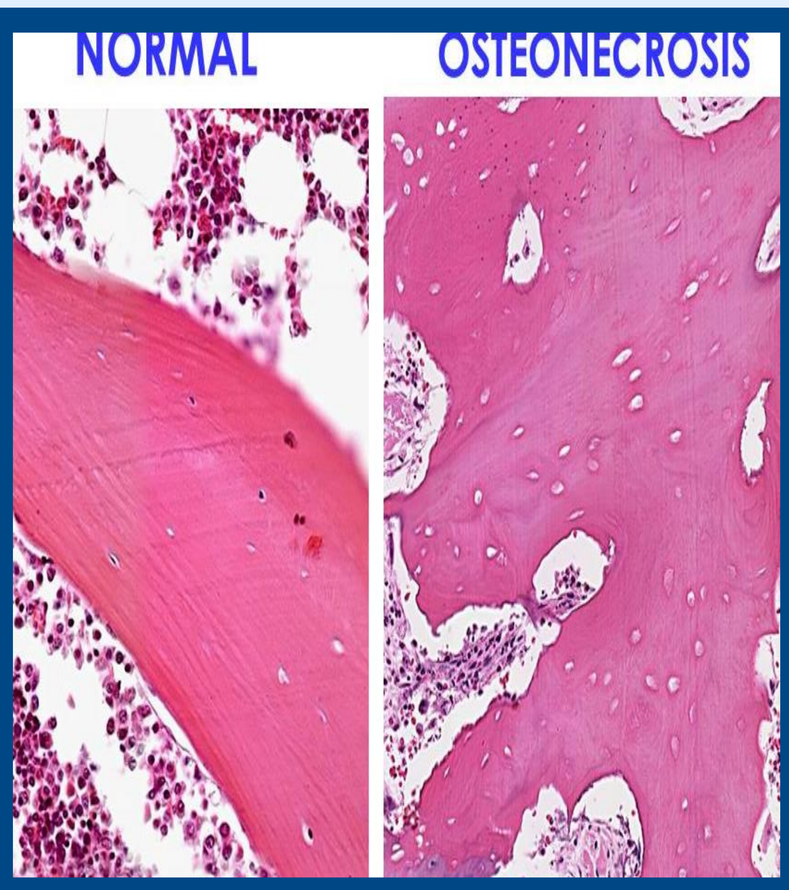

Figure 2: Histological appearances of osteoradionecrosis with poorly organised bone, reduced matrix, decreased osteoblast activity and vascular injury

Discussion

- Pituitary macroadenomas can more rarely extend down and erode into sphenoid bone presenting unique challenges

- Osteoradionecrosis is delayed and persistent necrotic bone in a radiation field in the absence of recurrent neoplasm and is well described in head and neck cancers

- Acute internal carotid artery haemorrhage is previously described in context of osteoradionecrosis of the skull base with radiotherapy for nasopharyngeal cancers but not previously reported in pituitary disease

- We postulate this a rare long term side effect from invasive pituitary disease exacerbated by radiotherapy treatment

References

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2) Mitchell MJ, Logan PM. Radiation-induced changes in bone. Radiographics. 1998 Sep;18(5):1125-36.

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