A rare case of Follicular Stimulating Hormone secreting pituitary adenoma in male

Punith Kempegowda[1,2], Martyn Carey[3], Latha Senthil[4], Andrew Toogood[1] and John Ayuk[1]

[1] Department of Endocrinology, Queen Elizabeth hospital Birmingham; [2] Institute of Metabolism and Systems Research, University of Birmingham;
[3] Department of Neuropathology, Queen Elizabeth hospital Birmingham; [4] Department of Neuroradiology, Queen Elizabeth hospital Birmingham

History and Examination

- A 61-year-old Caucasian male
- Presented with frequent hot flushes, dizziness, tinnitus and headache.
- No change in libido or shaving pattern.
- CT scan showed an incidental pituitary adenoma.
- was diagnosed with essential hypertension when he presented with similar symptoms 2.5 years ago.
- No other co-morbidities and no family history of endocrine disorders.
- Clinical examination was essentially unremarkable.
- Intact visual fields.
- Testicles were normal in size for age.

Investigations

- Unusually high follicular stimulating hormone (FSH) (>200 IU/L)
- Moderately raised prolactin (700 mU/L).
- Serum testosterone was marginally low (7.3nmol/L).
- MRI scan- large pituitary adenoma with right cavernous sinus involvement (Figure 1A).

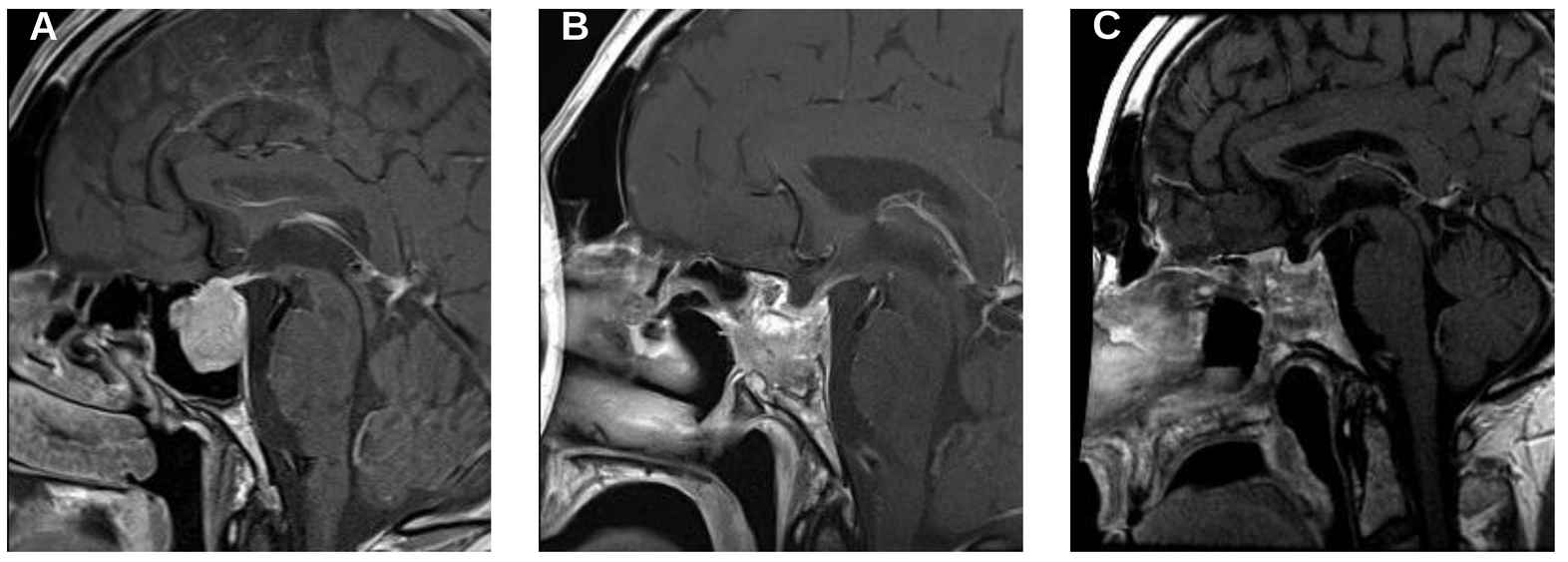

Figure 1: Magnetic Resonance Imaging (MRI) pituitary- pre-op (A) showing a large tumour of the pituitary fossa with suprasellar extension in contact with the chiasm and suprasellar nodules up the pituitary stalk**, Post-op (B)** demonstrating a reduction in tumour burden indicated by the resolution of pituitary stalk to near normal anatomical position; however the solid tumour indicating a significant residual disease **and post-octreotide treatment (C)** shows reduction in secretion of FSH indicated by its cystic nature**.**

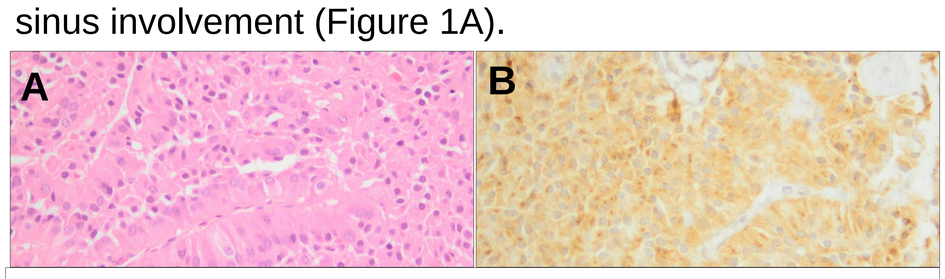

Figure 2: Histological images of pituitary tumour. Haematoxylin and Eosin stained image (A) showing perivascular pseudo-rosette formation and Immunochemistry (B) image showing positive staining for FSH.

Management

- Elective trans-sphenoidal debulking resection of adenoma in view of size and uncertainty of the nature of lesion.
- Histopathology- FSH secreting pituitary adenoma (Figure 2).
- Residual adenoma despite the surgery (Figure 1B) and his FSH remained high (187.5 IU/L) post-surgery.
- Trialled with octreotide- FSH levels normalised (11.2 IU/L) and his residual rumour shrunk (Figure 1C).
- Currently, patient continues to enjoy the period of symptom resolution and good health.

Discussion

- Functioning gonadotrophic adenoma (FGA) represent a rare clinical entity causing distinct manifestations.
- They are similar in morphology to non-FGA.
- The first case related to a histologically confirmed FGA was reported in 1995 by Djerassi et al [2].
- The most common clinical presentation include
  - Menstrual irregularity and ovarian hyperstimulation syndrome in females
  - Testicular enlargement in males
  - Isosexual precocious puberty in male children)
- The pathogenesis of FGA is unclear. Some of the proposed mechanism include[1]
  - Differences in GnRH receptor gene
  - FSH with an increased bioactivity to immunoreactivity ratio
  - Higher basic FSH isoforms are some of the proposed mechanisms.
- Figure 3 gives a simple algorithm to diagnose and manage patients with FGA.
- Treatment includes surgery, medical and radiotherapy.
- Life-threatening adverse effects such as pituitary apoplexy can rarely occur[3].

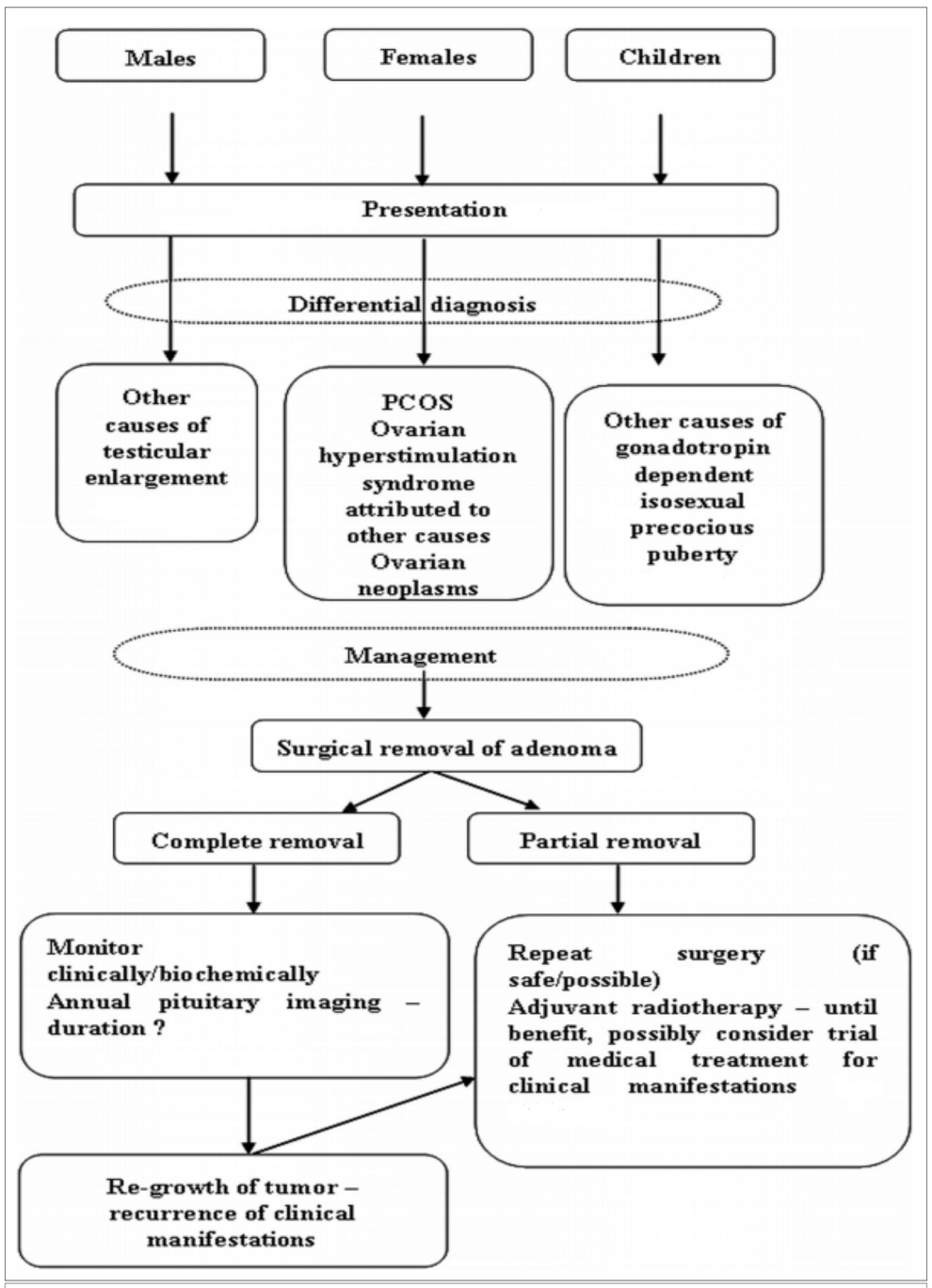

Figure 3: Flowchart with differential diagnosis and management of patients with FGA. From: Ntali *et al.*[1]

Summary

- We present a rare case of FGA in a man with successful resolution following combined surgical and medical treatment.
- Increased awareness is necessary for early diagnosis aiming to ameliorate the sequelae of hormonal hypersecretion and to minimize the consequences of the mass effect.

References

1. Ntali, G., Capatina, C., Grossman, A. & Karavitaki, N. Clinical review: Functioning gonadotroph adenomas. *J. Clin. Endocrinol. Metab.* **99,** 4423–33 (2014).

2. Djerassi, A. *et al.* Gonadotroph adenoma in a premenopausal woman secreting follicle-stimulating hormone and causing ovarian hyperstimulation. *J. Clin. Endocrinol. Metab.* **80,** 591–4 (1995).

3. Chanson, P. & Schaison, G. Pituitary apoplexy caused by GnRH-agonist treatment revealing gonadotroph adenoma. *J. Clin. Endocrinol. Metab.* **80,** 2267–2268 (1995).

Queries to: p.kempegowda@nhs.net

DOI: 10.3252/pso.eu.BES2016.2016