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

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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).

Discussion
• Functioning gonadotroph 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\textsuperscript{3}.
• 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\textsuperscript{1}
  • Differences in GnRH receptor gene
  • FSH with an increased bioactivity to immunoreactivity ratio
  • Higher basic FSH isofoms 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\textsuperscript{3}.

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 hyperstimulation and to minimize the consequences of the mass effect.

References

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 Immunohistochemistry (B) image showing positive staining for FSH.

Figure 3: Flowchart with differential diagnosis and management of patients with FGA. From: Ntalı et al.\textsuperscript{1}

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