Endocrinology, Diabetes & Metabolism CASE REPORTS

O Elshafie and N Woodhouse | Long term octreotide in acromegly

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Advanced acromegaly: successful disease control for more than 16 years using octreotide LA

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Summary

A 79-year-old male presented with a 10-year history of intermittent headache, sweating, persistent hand numbness and uncontrolled hypertension. He was receiving Nifedipine and Hydrochorothizide. On examination (O/E), his BP was 180/100 he was acromegalic. His growth hormone (GH) was 10 mIU/L (0.0–0.1) and his insulin-like growth factor (IGF-1): 952 µg/L (76–160). An MRI of the pituitary revealed a 3 × 2 cm pituitary macroadenoma. Surgery was refused and the family agreed for a therapeutic trial of octreotide. His GH levels fell immediately. Two weeks later he was switched to long-acting monthly octreotide in September 2003. During his 16-year follow-up, he has remained well and asymptomatic off medications for hypertension. His BP and IGF-1 levels were also normal until octreotide Long acting (LA) octrotide was stopped for 3 months at age 96. During this period the IGF-1 level returned to pretreatment levels 500 ng/L (50–141), GH 24 mIU/L (0.0–0.1), and a small residual tumour 0.5–0.8 cm was seen on the MRI. Octreotide LA was restarted and the IGF-1 and GH levels returned to normal. He continues the same treatment to date age 97 without side effects. We conclude that the successful control of IGF-1, GH levels, hypertension, tumour size and clinical symptoms for more than 16 years occurred using octreotide LA in an elderly advanced acromegalic patient. To the best of our knowledge, this is the first report of the successful use of octreotide LA for more than 16 years.

Learning points:

- The value of a therapeutic trial of octreotide to identify responders.
- Control of GH and IGF-1 secretion using octreotide LA.
- The report of the successful use of octreotide for more than 16 years irrespective of age.

Background

Acromegaly results from persistent hypersecretion of growth hormone (GH). Excess GH stimulates hepatic secretion of insulin-like growth factor-1 (IGF-1), which causes most of the clinical manifestations of acromegaly.

The clinical diagnosis is often delayed because of the slow progression of the signs of acromegaly over a period of many years.

Acromegaly is almost always caused by a somatotroph (growth hormone (GH)-secreting) adenoma of the pituitary gland and is associated with increased morbidity and mortality. As a result, almost all patients should be treated, even those who are asymptomatic and those in whom the disorder does not seem to be progressing. One exception is a patient with a short life expectancy who is not expected to live long enough to benefit from therapy (1, 2).

In this paper, we report the successful control of IGF-1 levels, hypertension, tumour size and clinical symptoms for more than 16 years using Octreotide LA in elderly advanced acromegalic patient age 96 without side effects.

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Case presentation

A 79-year-old male presented with a 10-year history of intermittent headache, sweating, persistent hand numbness and uncontrolled hypertension. Carpel tunnel decompression surgery had been carried out earlier. He was receiving Nifedipine 40 mg bd and Hydrochorothizide 25 mg od. O/E, His BP was 180/100, clinically he was acromegalic. He was referred to our hospital for further management.

Investigation

Investigations on admission showed GH 10 mIU/L (0.0–0.1), and IGF-1: 952 µg/L (76–160). Other pituitary hormones were normal. Skull X-rays showed ballooning of the pituitary fossa (Fig. 1A), An MRI of the pituitary revealed a 3 × 2 cm pituitary macroadenoma (Fig. 1B). US abdomen showed no gall stones.

Surgery was refused and the family agreed to a therapeutic trial of Octreotide 100 mcg sc three times daily for 1 week. His GH decreased immediately the following day (Fig. 2).

Treatment

After 2 weeks he was switched to long-acting monthly octreotide 40 mg on September 2003. He remained well, and asymptomatic off medications for hypertension. During his 16-year follow-up, he remained well and asymptomatic with a normal BP. Other pituitary hormones remained normal before and after treatment. A colonoscopy was done three times and no polyps were identified. IGF-1 levels were also normal until octreotide LA was stopped for 3 months' age 96. During this period the IGF-1 level returned to pretreatment levels 500 ng/L (50–141) and GH 24 mIU/L (0.0–0.1) (Fig. 3). Small residual tumour 0.5–0.8 cm was seen on the MRI (Fig. 4).Octreotide LA 40 mg was restarted and the IGF-1 and GH levels returned to normal. He continues the same treatment up to now at age 97 years without side effects.

Outcome and follow-up

The patient's symptoms; uncontrolled hypertension and elevated GH and IGF-1 levels disappeared throughout his medical treatment. His BP did not require any medications for 16 years until octreotide was stopped for 3 months, after which he became symptomatic, his BP increased and

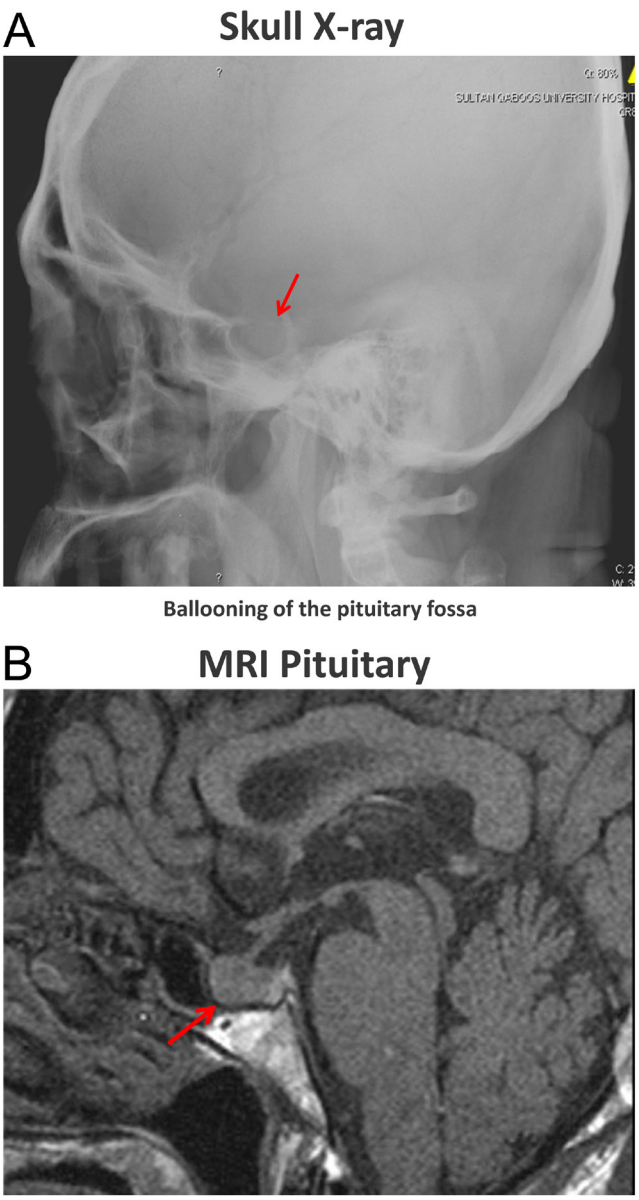

Figure 1
(A) Skull X-ray showing ballooning of the pituitary fossa. (B) MRI pituitary revealed a 3 × 2 cm pituitary macroadenoma.

GH and IGF-1 were both elevated. He returned to normal after he was restarted on octreotide LA.

Discussion

Acromegaly is almost always caused by a somatotroph (growth hormone (GH)-secreting) adenoma of the pituitary gland and is associated with increased morbidity and mortality. As a result, almost all patients should be treated, even those who are asymptomatic and those in whom the disorder does not seem to be

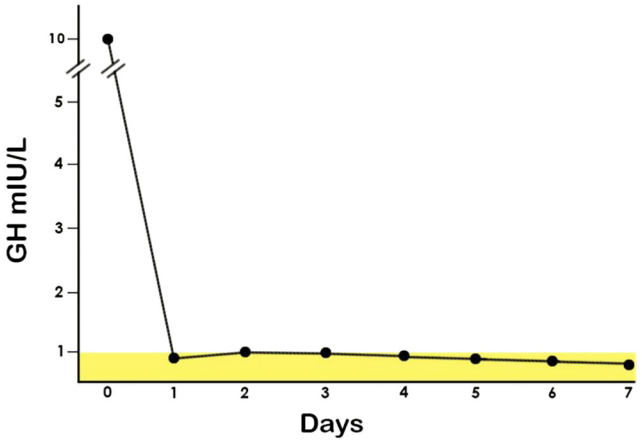

Figure 2
Therapeutic trial of octreotide showing a remarkable response in 24 h his GH fell to 1 mIU/L the following day.

progressing. One exception is a patient with a short life expectancy who is not expected to live long enough to benefit from therapy (1).

Transsphenoidal surgery is the usual initial therapy. This includes patients with a microadenoma, a macroadenoma that appears to be fully resectable, or a macroadenoma causing impairment of vision. Surgery should be performed by a neurosurgeon with considerable experience in pituitary surgery (2).

This patient was symptomatic with intermittent headache, sweating, persistent hand numbness and uncontrolled hypertension. The MRI confirmed a 3 × 2 cm macroadenoma. He refused surgery. On octreotide LA 40 mg monthly (3, 4) there were no side effects (5). Interestingly all his symptoms disappeared and BP normalized without

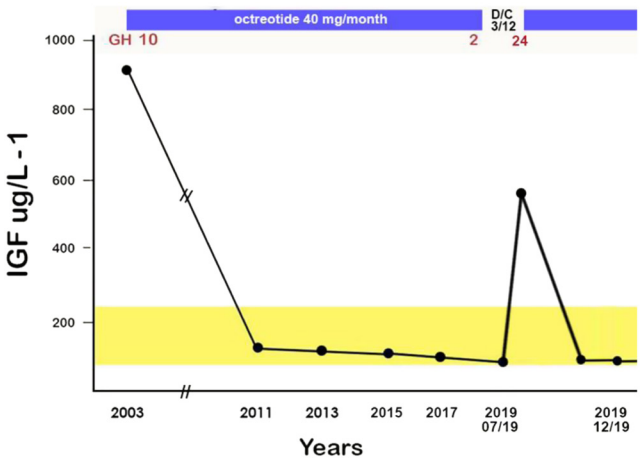

Figure 3
Octroetide 16 years' response: showing a normal IGF-1 and his relapse following withdrawal of his treatment.

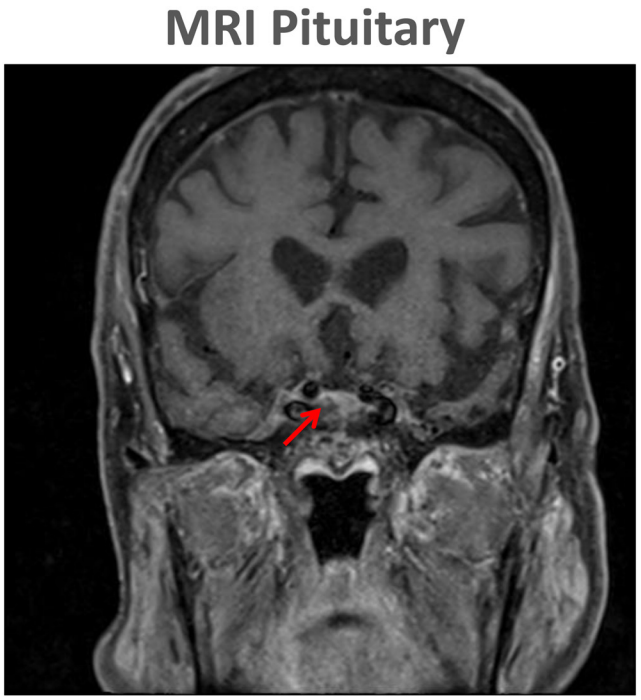

Figure 4
MRI pituitary showing recurrence of small residual adenoma 0.5-0.8 cm off octreotide for 3 months.

medications. Octreotide has a significant antineoplastic effect on somatotroph adenomas (6) and his tumour disappeared after 2 years (7).

The goals of therapy in patients with acromegaly are to lower the serum insulin-like growth factor-1 (IGF-1) concentration to within the normal range for the patient's age and gender, control adenoma size, reduce mass effects, improve symptoms and reverse metabolic abnormalities such as diabetes mellitus and hypertension. Our patient remained well and maintained a normal GH, IGF-1, BP and was asymptomatic for 16 years on octreotide LA 40 mg monthly IM injections (3, 8).

Octreotide was stopped for 3 months, hoping he been cured. However, his symptoms recurred and IGF-1 increased to 500 and GH to 24. The MRI showed 0.5–0.8 cm microadenoma. He was restarted on Octreotide LA 40 mg monthly and the IGF-1 and GH normalized.

Reports of using octreotide beyond 9 years are not available (9), our patient is substantially older than other reported cases (10).

Declaration of interest
The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

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Patient consent
Written patient consent was obtained from the patient's mother for publication of this case report.

Author contribution statement
O Elshafie and N Woodhouse were responsible for the diagnosis and management of the patient throughout and preparation of the manuscript.

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