CASE REPORT

Seeing the unseen: diagnosing acromegaly in a dental setup

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diya2001_rastogi@yahoo.co.in**SUMMARY**

Acromegaly is a rare metabolic condition in adults caused due to over secretion of growth hormone mostly due to pituitary gland adenomas. Disproportionate skeletal, tissue and organ growth are characteristic of acromegaly but the changes may be so insidious that most of the times go unnoticed by the patient and family. Craniofacial soft tissue and skeletal changes including mandibular prognathism and disturbed occlusion are typical manifestations of the disease process. Dental professionals may be the first healthcare providers to be visited by these patients and thereby prove instrumental in early diagnosis. Here we report the diagnosis of a case of acromegaly in a dental setup.

BACKGROUND

Acromegaly is a condition accompanied by cardiovascular, cerebrovascular and pulmonary dysfunction; which causes long-term complications and a 30% decrease in life span of patients.¹ The changes take place so gradually that around 6–10 years of active but unrecognised disease may precede diagnosis.² Clinicians, primary care attendants and family can play a vital role in the early detection of this potentially life-threatening condition. Studies show that around 40% of patients with acromegaly are diagnosed by internist, ophthalmologist, dentist, gynaecologist and rheumatologist.³ The clinician first visited by the patient should be astute enough to diagnose the condition thereby reducing the morbidity and mortality due to late diagnosis. This case presentation shows how vigilance on the clinicians' part can lead to accurate and early diagnosis which is so crucial in such cases.

CASE PRESENTATION

A 36-year-old male patient reported at our clinic with a chief discomfort of pain and clicking sounds in jaw joints and enlarging lower jaw since 1 year. Medical history revealed constant headache, occasional pain in knee joints and continuous weight gain in the past 7–8 months. He also had thickened fingers; being a barber by profession he recently had to change his scissors because his fingers would not fit in the grip holes. On general examination the extremities appeared enlarged and the patient was found to be hypertensive. Extraoral examination revealed a large face with increased lower third facial height, widened and thickened nose, prominent supraorbital ridges, thick and coarsened lips and marked facial lines (figure 1). Clicking sounds were present on temporomandibular joint (TMJ) bilaterally suggestive of temporomandibular

disorder. Intraoral examination revealed a large tongue with indentation of teeth on its lateral borders. Maxillary arch appeared widened with generalised spacing between anterior teeth.

Owing to suspicion of endocrinal disorder, a provisional diagnosis of acromegaly and a differential diagnosis of Paget's disease and gigantism was made.

INVESTIGATIONS

According to the guidelines of American Association of Clinical Endocrinologists (AACE)⁴ clinical presentation, radiological and biochemical confirmation by measurement of serum insulin-like growth factor-I (IGF-I) and glucose-suppressed growth hormone (GH) levels are required to diagnose acromegaly.

In our patient the lateral cephalogram showed prominent supraorbital ridges, bimaxillary protrusion, increased gonial angle, slightly enlarged sella turcica and frontal sinuses (figure 2). MRI scans confirmed the expansively growing tumour mass within the sella turcica and also extending towards the right parasellar region (figure 3). Biochemical examination showed increased levels of GH nadir after oral glucose tolerance test and IGF-I (table 1).

OUTCOME AND FOLLOW-UP

The patient was referred to an endocrinologist and is scheduled to undergo trans-sphenoidal surgery

Figure 1 Lateral view of patient's face showing coarsened facial features and frontal bossing.

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Figure 2 Lateral cephalometric radiograph.

with complete tumour resection and is currently being managed medically with somatostatin analogues.

DISCUSSION

Acromegaly is a rare disease usually observed in adults between 30–60 years. The prevalence is ambiguous ranging from 60 to 1034 cases/million as reported in different population studies.^{4–6} The clinical features of acromegaly are of insidious onset and lack specificity such as lethargy, headaches, hyperhidrosis and psychological changes which may be mistaken as aging signs. Physical findings as acral changes, joint pain, diabetes mellitus, sexual dysfunction, hypertension, goitre and visual field disturbances, are also found.⁴ The facial soft tissue and skeletal changes are common with frontal skull bossing, prominent supraorbital ridges, mandibular prognathism, malocclusion, overbite, widened and thickened nose, thick and coarsened lips and marked facial lines that may be eye catching diagnostic criteria for dentists.

Figure 3 MRI of the brain showing T1-weighted coronal image of sellar lesion (arrow) extending towards the right parasellar region.

Table 1 Diagnostic features of acromegaly and clinical findings in our patient

	Diagnostic criteria	Findings in our patient
Clinical presentation	Presence of two or more of the following comorbidities: new-onset diabetes, diffuse arthralgias, new-onset or difficult-to-control hypertension, cardiac disease including biventricular hypertrophy and diastolic or systolic dysfunction, fatigue, headaches, carpal tunnel syndrome, sleep apnoea syndrome, diaphoresis, loss of vision, colon polyps and progressive jaw malocclusion	New-onset hypertension, diffuse arthralgia, diaphoresis and progressive jaw malocclusion
Biochemical results	Elevated level of insulin like growth factor-I, growth hormone (GH) nadir >1.0 ng/mL after oral glucose dose (panel suggests >0.4 ng/mL after oral glucose dose)	IGF-1>1600.00 ng/mL GH (after OGTT) 13.9 ng/mL
MRI findings	Dedicated pituitary MRICommon finding, macroadenoma	Pituitary macroadenoma

Adapted from Katznelson *et al.*⁴ OGTT, oral glucose tolerance test.

The diagnosis of acromegaly is confirmed after thorough physical examination, radiographic analysis and biochemical evaluation.

Measurement of GH response to glucose load is the standard diagnostic test. An increase in the age-matched and sex-matched serum concentration of IGF-I, the main GH dependent growth factor, confirms this diagnosis.¹ MRI has emerged as the imaging modality of choice for evaluating pituitary gland abnormalities.⁷ Newer diagnostic tools as face classification software using photographs of the face for detection of acromegaly have also been developed.^{5 6}

Treatment options include surgical, medical and radiotherapeutic management. The mainstay of therapy is surgical intervention, but a combination of therapy is usually required to reverse or prevent comorbidities, reduce mortality and prevent visual or neurological damage due to the tumour mass.

Diagnosis of acromegaly and its treatment is a challenge to all health professionals due to the subtle presentation of disease process and multiple system involvement. Such patients are usually ignorant about their condition and most often visit a dental surgeon with chief symptoms of growing mandible, malocclusion, TMJ pain or ill-fitting dentures.

In a study conducted by Siegel *et al* at a German University Hospital to assess healthcare delivery in patients with acromegaly it was found that the most frequent symptoms experienced by the patients were teeth and jaw problems, 36.6% of the patients had to visit the dentist at some time prior to diagnosis. Nevertheless, none of the patients were diagnosed with acromegaly by a dentist.⁸

Clinicians should be attuned to watch out for the signs and symptoms of acromegaly to avoid long-term damage due to late diagnosis.

Learning points

- ▶ Acromegaly is a rare but insidious disease developing slowly over the years due to which there is a considerable diagnostic delay.
- ▶ Owing to the overall systemic involvement and diversity of signs and symptoms, the specialties likely to be encountered by patients with undiagnosed acromegaly are dental surgeon, physician, ophthalmologist, gynaecologist or rheumatologist.
- ▶ The clinician first visited by the patient should be vigilant enough to see the unseen and diagnose the condition, thereby sparing the patient from increased morbidity and mortality due to advancement of the disease process.

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