

## Hair Loss after Transesphenoidal Surgery in Patient with Cured Acromegaly

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### Abstract

Hair loss has been reported as an adverse effect of somatostatin analog therapy; on the other hand, hair loss after surgical treatment for acromegaly has been rarely described. In either case, the mechanism is still unknown. We report a case of a patient with acromegaly that presented with hair loss after surgical treatment.

### Keywords

hair loss; acromegaly; transesphenoidal surgery

### Case Description

We describe a case of a 73 y.o female that was being studied for acromegaly because of enlarged facial features (Figure 1a). Laboratory results confirmed acromegaly: IGF-1 (Insulin like growth factor) 875.2ng/ml, GH (Growth hormone) 16,20ng/ml, GH 120 minutes post-OGTT (oral glucose tolerance test) was 54ng/ml. The MRI showed a pituitary macroadenoma with suprasellar extension without sinus invasion or optic chiasm compression.

Transsphenoidal surgery was performed with complete tumor resection and no immediate complications were noted Postoperative IGF -1, GH and OGTT for GH were measured at 12 weeks confirming biochemical remission (see Table 1). The rest of the pituitary axis remained within normal range. Four months after surgery the patient presented with diffuse scalp hair loss, predominantly in the frontoparietal area, and complete loss of eyebrows (Figure 1b). She was diagnosed with telogen effluvium. We performed a basic laboratory evaluation, which ruled out other etiologies (see Table 2) than might cause hair loss. Three months after the initial evaluation for hair loss she had a spontaneous mild recovery in the frontal parietal area, but no signs of recovery in her eyebrows.

Transsphenoidal surgery is the primary therapy in most acromegalic patients. Only one study has been published that describes hair loss after surgical treatment for acromegaly [1]. In this study by *Yamada et al* telogen effluvium was observed approximately in 50% of patients who underwent surgery for acromegaly. Hair loss occurred generally in the first six months after surgery, mainly in women and patients that presented biochemical criteria for complete remission. The degree was generally mild, and the most common area of hair loss was the parietal region. In regard to recovery, full recovery was seen in 32%, mostly women. Incomplete recovery was observed mainly in men and patients with severe scalp hair loss. It should be also noted, in the same study, hair loss also occurred after transsphenoidal surgery

for nonfunctioning adenomas however the frequency was not as high (3.2%), they were milder cases and presented spontaneous recovery.

## Discussion

In our patient's case, the clinical features presented were similar to the ones described in this study, except the complete loss of eyebrows, which, to our knowledge, until now would be the first case to be reported. Nevertheless, the association between hair loss and cure of acromegaly is yet unknown. IGF-1 may play an important role in the development and preservation of the hair follicle [3]. In fact, acromegaly has been associated with hypertrichosis and administration of exogenous IGF-1 has been associated with an increase on the number of hair follicles and prolonged the growing phase on mice [4]. Because of this data, the drastic descent of the IGF-1 levels could be implicated on the mechanism of telogen effluvium in these patients. The same mechanism has been suggested for the hair loss experienced in some patients treated with somatostatin analogs and pegvisomat [2].

## Conclusion

Hair loss can appear after transsphenoidal surgery for acromegaly. This condition may be more frequent than what has been reported, and might go unnoticed by clinicians or the patient himself. Due to the association between hair loss and the drop of IGF-1 levels, this event could be considered as an indirect sign of remission. Questioning patients about hair loss could help us make an early diagnosis, understand its natural history, true frequency and risk factors. Finally, because hair loss has been associated with low self-esteem and quality of life [5] improve in the knowledge of this entity could help clinicians to inform acromegalic patients about this possible outcomes, and the probably of recovery.

## Tables

**Table 1:** Initial and postoperative laboratory results.

	Initial study	Post operative study	Normal range
IGF-1 (ng/ml)	875.2	218	91.0 - 225.0
GH (ng/ml)	16.2	1.99	0.00 - 5.00
GH 120' post-OGTT (ng/ml)	54.6	0.253	

**Table 2:** Laboratory evaluation after hair loss.

	Result	Normal range
TSH ( $\mu$ U / ml)	0.85	0.57 - 5.92
T4L (ng / dl)	1.35	0.72 - 2.00
FSH (UI/L)	35.88	26 - 135
LH (UI/L)	16.11	7.7 - 59
Testosterone (ng / dl)	30	6.0 - 46
Cortisol ( $\mu$ g / dl)	15.10	6.00 - 18.00
DHEA-S ( $\mu$ g / dl)	55.26	15-60
17-OH-Progesterone (ng/dl)	50	15-60
Hemoglobin (g / dl)	13.4	11.4 - 15.1
Ferritin (ng / ml)	99	30 - 400

## Figures



**Figure 1:** Photos of the patient at diagnosis (1a) and after hair loss (4 months after surgery) (1b).

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