

Breast cancer in a postmenopausal woman living with prolonged acromegaly

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Introduction

- Acromegaly** is a chronic disease caused by the excessive production of growth hormone (GH) and insulin-like growth factor-1 (IGF-1) from a GH-secreting pituitary adenoma¹.
- Approx. 4,600 per million population globally, with an annual incidence of about 116.9 new cases per million¹.
- Increase in neoplasia incidence with acromegaly remains controversial, but increased rates of **breast cancer** have been observed².

Case Presentation

- A 60-year-old unmarried postmenopausal female presented to the surgery OPD with a progressively enlarging painless lump in her left breast for 3 months.
- Known case of hypertension and type 2 diabetes mellitus.
- No history of fever, back pain, headache, blurred vision, hemoptysis, loss of consciousness, or seizures.

Clinical Examination:

- Hard, mobile, non-tender well defined irregular mass in left breast at 7-9 O'clock position
- 2x1 cm firm, mobile, non-tender left anterior axillary lymph nodes
- Features suggestive of **acromegaly (+)**:
 - Prominent jaws
 - Enlarged tongue
 - Large hands
 - Prognathism

Investigations:

- Elevated Growth Hormone (GH; **69.5** ng/mL) on GH Suppression Test and Somatomedin-C (IGF-1; **455.0** ng/mL).
- Other laboratory investigations were within normal limits (*Table. 1*).
- MRI of the head showed an **enlarged pituitary gland (7x12 mm)**, confirming acromegaly in the context of a pituitary adenoma (*Fig. 1*).
- USG-Breast and mammography (*Fig. 2*) suggested a **malignant mass** in the **left lower quadrant** with ipsilateral axillary lymph node metastasis.
- Core biopsy and immunohistochemistry (IHC) revealed ductal carcinoma in situ (**DCIS**) luminal-A subtype (**ER/PR+, HER-2/neu-, and Ki67-3%**) of the left breast.



Dx.: Left breast DCIS and Acromegaly in a background of Pituitary adenoma.



Underwent **Modified Radical Mastectomy (MRM)**, received **tamoxifen** and **pegvisomant**.

Conclusion

- Acromegaly might **increase breast cancer risk** in elderly women; they should be kept under regular **mammography** and **clinical examination**.
- Early diagnosis and appropriate treatment, including **tamoxifen** and **pegvisomant**, are crucial for improving patient outcomes.

S. N.	Tests	Unit	Pre-op Findings	Normal Range
1.	IGF-1/ Somatome-dic-C	ng/mL	455.0	45.0 - 210.0
2.	Growth Hormone (Baseline; GH Sup. Test)	ng/mL	69.5	<3.0
3.	LH	µIU/mL	5.94	13.1 - 86.5 (Postmenopausal)
4.	FSH	µIU/mL	26.52	21.5 – 131.0 (Postmenopausal)
5.	Prolactin	ng/mL	19.48	5.1 – 26.5
6.	Cortisol	µg/mL	6.6	3.7 – 19.4 (Morn)
7.	Free Triiodothyronine (fT3)	pmol/m L	3.2	2.4 – 6.0
8.	Free Thyroxine (fT4)	pmol/m L	10.0	9.0 – 19.0
9.	TSH	uIU/mL	0.76	0.35 – 4.94

Table 1: Pre-operative biochemical findings in the patient



Fig. 1: MRI scan showing pituitary enlargement (7*12 cm)

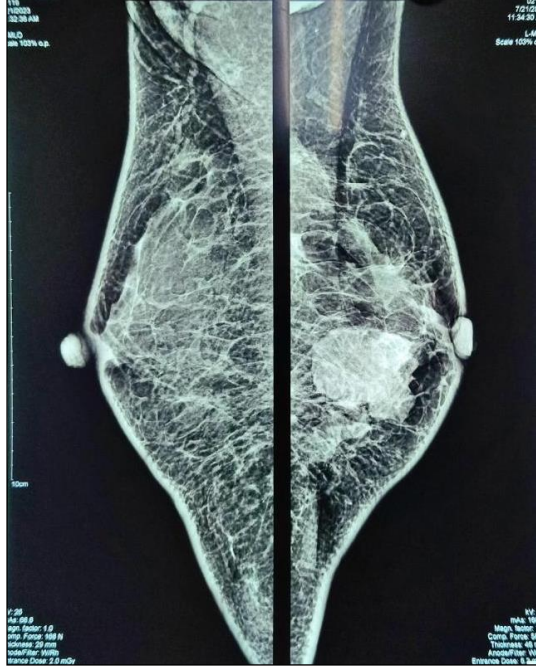


Fig. 2: Mammogram with partially circumscribed high density mass in infero-medial quad of left breast (3.5*3.8 cm)

Discussion

- The link between elevated **GH/IGF-1** levels and cancer risk is debated, but there's a noted increase in benign (2x) and **malignant tumors (30%)**, especially colorectal, thyroid, breast, and ureteral cancers³.
- Up to **50% of breast tumors** express the activated **IGF-1** receptor⁴.
- GH and IGFs have **pro-mitogenic** and **anti-apoptotic** properties by suppressing tumor-suppressor genes, such as p53.
- Tamoxifen lowers** plasma **IGF-1** levels, contributing to its antitumor action.

References

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