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LETTER TO EDITOR

Asymptomatic silent giant corticotroph adenoma with invasion of cavernous and sphenoid sinuses in association with dermatomyositis: a case report and literature review

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Dear Editor,

Dermatomyositis, an autoimmune condition with cutaneous and muscle involvement, is associated with malignancy in 15.3%.[1] We report a lady presenting with dermatomyositis who also had an invasive silent corticotroph adenoma (SCA).

A 65-year-old Chinese female was referred for raised creatinine kinase (CK) level, generalised rash, and rapidly progressive proximal limb weakness over one month. She had weight loss, arthralgia, peripheral numbness, and alopecia. She did not have dysphagia, alteration in bowel habits, respiratory or infective symptoms. She had a parental history of colon carcinoma. Examination revealed erythema over bilateral cheeks, periungual region, anterior neck and posterior shoulders, without evidence of Gottron's papules and Holster sign. There was proximal myopathy in all limbs (Power 2) with poor truncal tone. There was no lymphadenopathy or organomegaly. Neuro-ophthalmological assessment was unremarkable. She was clinically not Cushingoid.

Serum CK was elevated at 5782 (44-201) U/L with transaminitis. Myositis panel results showed speckled ANA 1:640, anti Mi-2a and anti Mii-2b were weakly positive. She did not have hypopituitarism or raised ACTH: 250mcg Synacthen showed baseline cortisol 416 nmol/l, peak cortisol 723 nmol/l, ACTH 43.4 (10.0-60.0) ng/L. Electromyography showed myopathic changes with moderate denervation activity. Muscle biopsy revealed perivascular inflammation and perifascicular atrophy, consistent with dermatomyositis. The malignancy screen with computed tomography and scopes were negative.

Due to increased incidence of nasopharyngeal carcinoma (NPC) in Asians with dermatomyositis[2], nasopharyngoscopy was performed which showed a mass arising from the skull base, replacing the posterior septum, without evidence of NPC. Magnetic resonance imaging (MRI) revealed a 4.6cm mass with left deviation of the pituitary infundibulum (Fig. 1A), and extension into bilateral cavernous, sphenoid, and ethmoid sinuses.

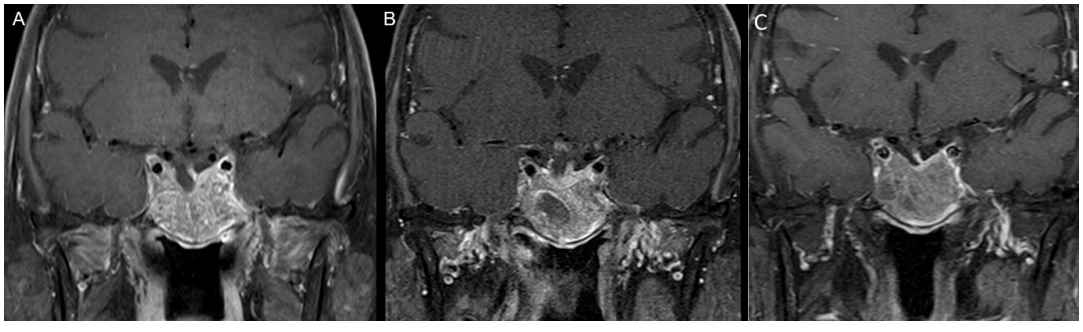

FIG. 1: (A) MRI showing the pituitary lesion with left deviation of pituitary stalk, (B) MRI after surgical biopsy, (C) MRI 3 months post-biopsy.

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The patient underwent a trans-sphenoidal biopsy. Haematoxylin and eosin stains of formalin-fixed paraffin-embedded specimen confirmed lesional tissue composed of anastomosing trabeculae and nests of polygonal cells with uniform nuclei and ample eosinophilic cytoplasm. (Fig. 2A) The nuclei showed mild anisonucleosis and fine chromatin with occasional small nucleoli. (Fig. 2A) There was invasion and entrapment of bony tissue, (Fig. 2A) with loss of normal adenohypophyseal reticulin framework (Fig. 2B). On immunohistochemistry, tumour cells were diffusely positive for synaptophysin and ACTH, (Fig. 2C). Other pituitary hormones were negative. Ki67 nuclear positivity was 1%. Scattered cells expressed somatostatin receptor 2 (SSTR2) (Fig. 2D). These findings were consistent with SCA.

Post-operatively, there were remnant tissues in the surgical bed (Fig. 1B). She did not develop hypocortisolism. She had three days of methylprednisolone, intravenous immunoglobulin followed by maintenance Prednisolone. Three months later, MRI pituitary showed recurrent growth (Fig. 1C) and she underwent radiotherapy. Proximal limbs power improved to 4 with maintenance Prednisolone and Mycophenolate mofetil. This was consistent with dermatomyositis, which responded well to immunosuppression.

To the best of our knowledge, this is the first SCA associated with dermatomyositis. SCAs account for 3-6% of pituitary adenomas and 40% of corticotroph cell tumours.[3] They are more common in females, usually present as macroadenomas with mass-related symptoms and hypopituitarism.[4] Rates of invasion into sphenoid or cavernous sinuses range from 44-49%[5], posing challenges for complete resection. Consequently, SCAs have higher recurrence rates[3] than other non-functioning pituitary adenomas (NFPA), necessitating repeated surgery and chemoradiotherapy. Recurrent SCAs are larger and stain more strongly for ACTH.[5] Furthermore, NFPA with a higher tendency for secondary therapy after resection had a higher tumour growth rate (>80mm^3/year).[6]

Although only scattered cells were positive for SSTR2, SSTR immunohistochemistry may have prognostic significance as recurrent tumours had a lower level of expression of SSTR5.[7] Higher expression of SSTR2 in SCAs could also have implications for treatment.[3] This is currently undergoing

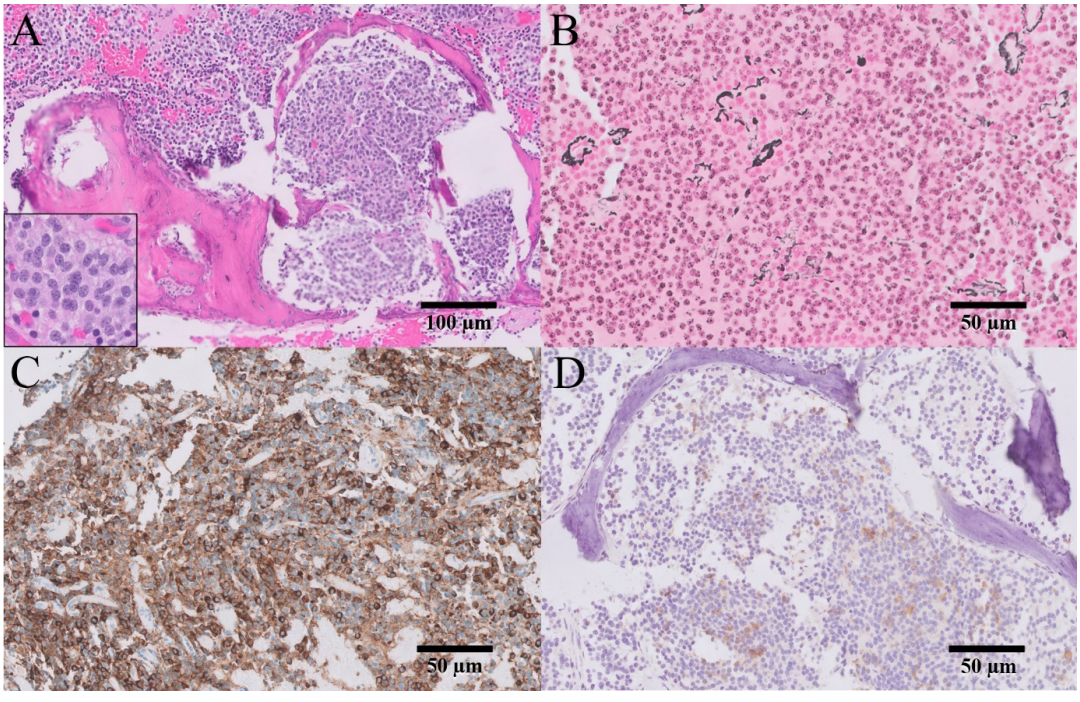

FIG. 2: (A)10x magnification, H&E: Bony invasion and entrapment of bony tissue with nests of polygonal cells. These cells had fairly uniform nuclei and ample eosinophilic cytoplasm, with anastomosing trabeculae. (Inset: mild anisonucleosis and fine chromatin with occasional small nucleoli in nuclei); (B) 20x magnification, reticulin: scattered staining with disrupted reticulin network; (C) 20x magnification, ACTH: strong and diffuse cytoplasmic staining; (D) 20x magnification, SSTR2: scattered cells showed cytoplasmic staining.

a phase II randomised controlled trial (PASSILCORT, ClinicalTrial.gov identifier, NCT02749227).

We present the first SCA associated with dermatomyositis. SCAs are frequently invasive and recurrent. SSTR may have treatment and prognostic significance in SCAs. Further workup for malignancy may be warranted in dermatomyositis despite unremarkable initial investigations.

Keywords: Pituitary, adenoma, silent corticotroph, dermatomyositis

Conflict of interest: The authors declare no conflict of interest.

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