Optic neuropathy following radiotherapy for Cushing's disease followed by the diagnosis of pituitary carcinoma

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BACKGROUND

Adrenocorticotrophin secreting pituitary carcinomas are rare neoplasms but there are not factors to predict their aggressive evolution nor a standard practice to their management.

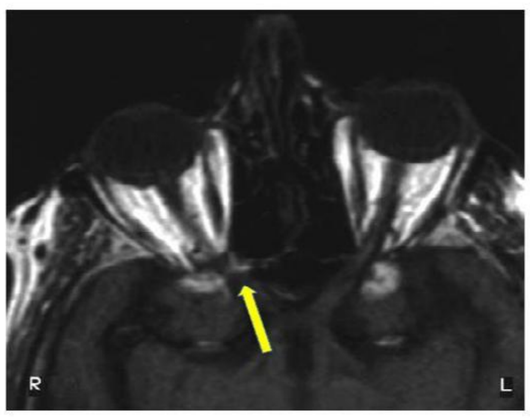
CASE REPORT

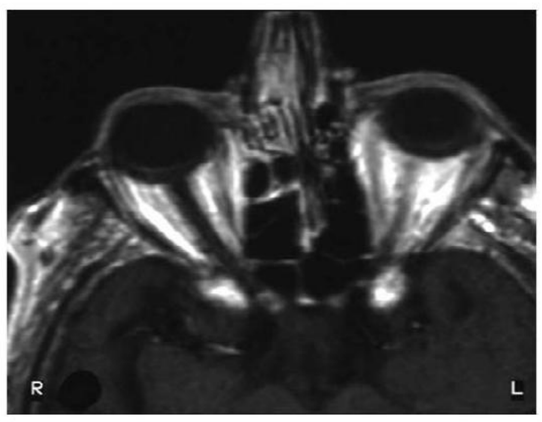
43 year old female patient presented in 1990 with Cushing's syndrome due to adrenocorticotropin secreting pituitary microadenoma

THERAPEUTIC MANAGEMENT

1990: Trans-sphenoidal surgery with cure (post-operative cortisol serum levels <50nmol/L).
2000: clinical, biochemical and imaging recurrence (10 years after her first remission)
2001: repeat surgery with cure (post-operative cortisol serum levels <50nmol/L)
2002: recurrence
2002-2004: Ketoconazole (increased doses up to 1200 mg) + cabergoline + somatostatin analogues therapy
2005: no tumour was documented in imaging studies; she received external beam irradiation (in total a dose as high as 54 Gy)
2005: increased doses of metyrapone up to 4000mg and ketoconazole up to 1200mg
2005: UNCONTROLLED hypercortisolaemia→ bilateral adrenalectomy

2006: Orbital MRI T1 revealing optic neuropathy

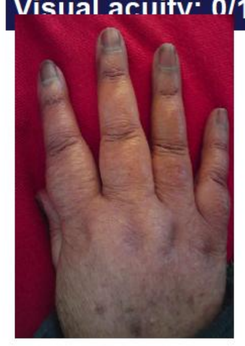


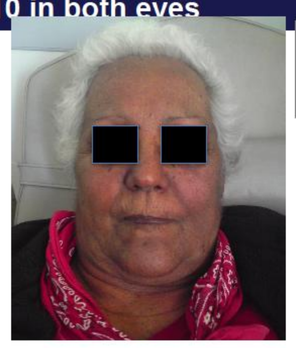


5 days IV administration of corticosteroids→ aggravation

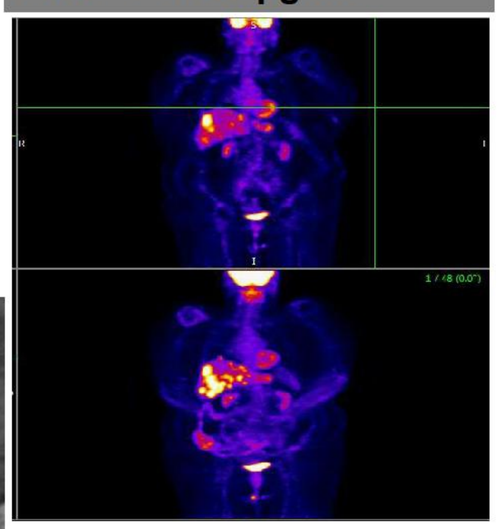
6/2006 : Hyperbaric oxygen therapy (20 cycles, 2 Atm for 30 min)- no result

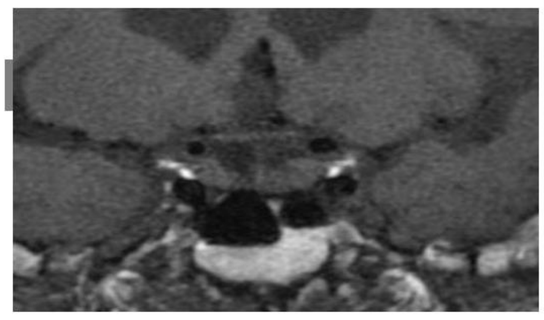
Visual acuity: 0/10 in both eyes





2009-2010: ACTH: 5.858→22.240 pg/ml





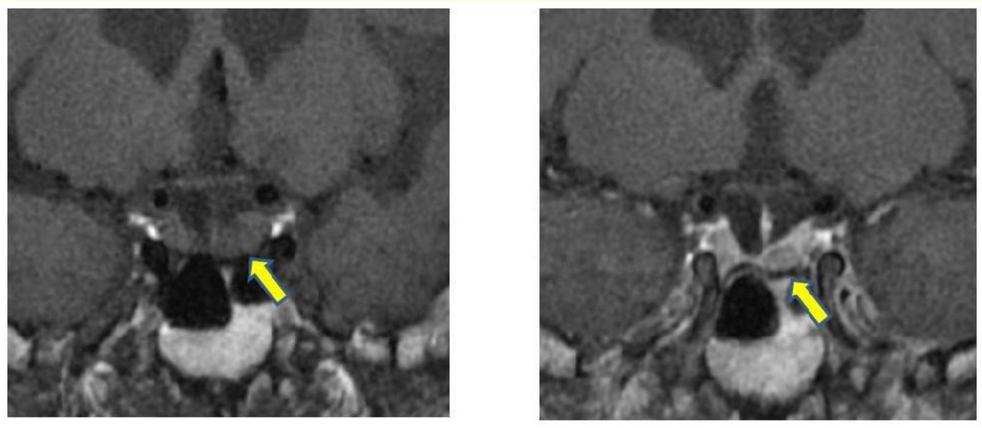
2008: ACTH: 200 pg/ml (9-52)
Pituitary MRI: post-op changes

2010: FDG-PET Scan: multiple metastatic deposits in liver (SUVmax 21,2 -12), pituitary: (SUVmax 9,1); no lymph nodes/ bones/ brain

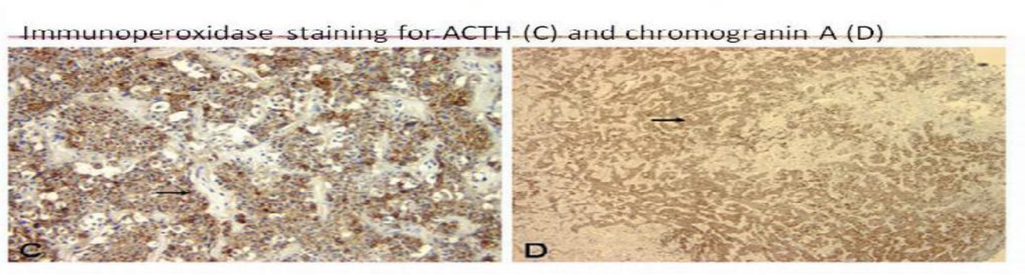
References

Koumarianou et al. Endocrine-Related Cancer ,2012; Heaney.JCEM 96:3649-3660,2011; Dudziak et al. September 2011, 96:2665–9; Ann I. McCormack. Eur J Clin Invest 2011; 41: 1133–48

PITUITARY CARCINOMA DIAGNOSIS



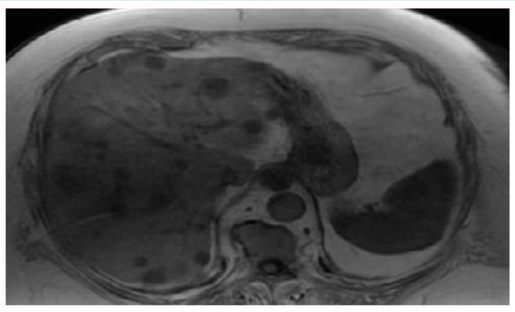
Presence of lesion 7.5mm in the left lateral part of pituitary, not clear margin . Optic chiasm atrophy.



29/12/2012.Liver biopsy. Well differentiated endocrine carcinoma. Immunohistochemistry: Ker 18 (+), Syn (+), CgA (+), CD 56 (+), Ki-67=3%, ACTH (+). OCTREOSCAN: (-)ve

THERAPEUTIC MANAGEMENT

❖3 cycles of temozolamide (Temodal) 100 mg 5 days / week PO + bevacizumab IV (Avastin) 200mg /week



ACTH: 223.019→ 89.900 pg/ml
BUT MRI ABDOMEN → 🡅
LESIONS SIZE; MAX 39x39mm → 52x51 mm (33.3%↑)

Biochemical Response
Imaging Deterioration
+
Dedifferentiation?
9/5/2011
New liver biopsy (2)
LOW DIFFERENTIATION → Cisplatin + etoposide

ACTH : 13.375→ 88.590 pg/ml (9-52)
MRI ABDOMEN → 🡅 LESIONS SIZE+NUMBER
Dedifferentiation?
21/1/2012
New liver biopsy (3)
Ki67 ~8 %

MGMT (methylguanine DNA methyltransferase) Methylation specific PCR (MS11/9/2012 RADIOFREQUENCY RIGHT LIVER LOBE
P): LOW BUT Temozolamide + Bevacizumab

SEPSIS→ MYELOTOXICITY→ CONSERVATIVE TREATMENT
DECEASED : 19/9/2014

CONCLUSIONS

The appearance of pituitary carcinoma cannot be excluded by the cure post trans-sphenoidal surgery nor be prevented by a high dose of irradiation even this is so high to cause radiation-induced optic neuropathy

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Pituitary clinical
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