Association of two aggressive tumors: prolactinoma and multiple meningioma – difficult issue, difficult management

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\textbf{Introduction}

- Pituitary adenomas are common intracranial tumors mainly considered as benign.
- Rarely, these tumors can exhibit an aggressive behavior, invading surrounding tissues, presenting a resistance to conventional treatment leading to early and frequent recurrences.
- Even more rarely, pituitary tumors can give rise to cerebospinal or systemic metastases, therefore being qualified as pituitary carcinomas.
- Pituitary carcinomas are exceedingly rare, with an incidence of 0.2% of symptomatic pituitary tumors [1].

- Meningioma are benign tumors that derive from arachnoid membrane, with higher frequency in females than males [2].
- The coexistence of pituitary adenoma and meningioma is very rare.
- The association between prolactinoma and meningioma is partly attributed to the existence of prolactin receptors at the level of meningioma [3].

\section*{Case report}

\textbf{2008}

- 46 year old female patient with bitemporal hemianopsia
- no other clinical complaints

\textbf{MRI:}

- pituitary macroadenoma (22/19/35/mm) with suprasellar evolution
- hormonal balance
- \textit{hyperprolactinemia}
- \textit{PRL= 66ng/dl - X 3 N: (1.2-19 ng/dl)}
- \textit{Cabergoline with good evolution}
- \textit{secondary thyroid and gonadal insufficiency}
- \textit{TSH= 0.4 uU/ml (N: 0.4-4uU/ml)}
- \textit{FSH= 7.3uU/ml (N: 35-151uU/ml)}
- \textit{LH = 3.3uU/ml (N: 16-90uU/ml)}

\textbf{2016}

\begin{table}[h]
\begin{tabular}{|c|c|c|}
\hline
\textbf{Hormone} & \textbf{Values} & \textbf{Normal Values} \\
\hline
TSH & 0.221 uU/ml & 0.4-4uU/ml \\
\hline
FT4 (under substitution) & 0.880ng/dl & 0.89-1.70ng/dl \\
\hline
Cortisol (under substitution) & 2.97 ug/dl & 5-25ug/dl \\
\hline
IGF & 64 ng/ml & 87-238ng/ml \\
\hline
FSH & 0.67muU/ml & 21.7-153muU/ml \\
\hline
PRL & 15.1ng/ml & 1.9-25ng/ml \\
\hline
\end{tabular}
\end{table}

- 3 years later 2011
- \textit{acute intracranial hypertension}
- \textit{Transcranial adenomectomy}
- \textit{Gamma knife radiation}
- \textit{subsequent adrenal insufficiency}
- \textit{Nodular goiter}
- \textit{partial thyroidectomy}

- 4 years later 2015
- \textit{progressive tumor growth}
- \textit{second transcranial adenomectomy}

\begin{figure}
\centering
\includegraphics[width=\textwidth]{image.png}
\caption{Tumoral lesion with mix structure: parenchymatous and chyctic intra and extra sellar with extension in left cavernous sinus}
\end{figure}

\textbf{1 year later 2016}

- \textit{intensive vertiginous syndrome}
- \textit{second episode of acute intracranial hypertension}

\textbf{MRI:}

- two cerebral meningiomas

\begin{itemize}
\item One located at craniospinal junction
\item Urgent excision
\end{itemize}

Hysto pathological:

- Disseminated eosinophilic pituitary adenoma
- Post op: Left cranial nerves paresis X, XI, XII
- Remnant: aggressive pituitary adenoma vs meningioma

\textbf{Discussion}

- Pituitary adenoma express different receptors for Fibroblast growth factor FGF1 and FGF2. There is a high immunoreactivity towards circulatory FGF like in patients with sporadic pituitary adenoma and meningioma [3,4]. This fact could explain the association between adenoma and meningioma

- It is debatable if meningioma result as a consequence of hormone dependent growth or secondary to radiation, characterized by younger age at presentation, higher male-to-female ratio and biologically more aggressiveness compared to primary spontaneous meningioma [5].

\section*{Conclusion}

- Patient’s evolution is marked by rapid and extensive tumor progression in spite of adequate treatment, consistent with an aggressive pituitary adenoma.

- Nevertheless, in our case we discuss about the association between prolactinoma and multiple meningioma versus aggressive pituitary tumor.

- Further histopathological and molecular markers could be helpful in establishing a firm diagnosis and targeted treatment.

\textbf{References:}