

Adenoid cystic carcinoma of the parotid with facial nerve invasion

Kamel Ayadi* MD, Lobna Ayadi**MD, Emna Daoud MD*, Zeineb Mnif MD*, Khairredine Ben Mahfoudh*MD, Tahya Boudawara**MD, Jamel Mnif*MD.

* Radiology Department, Habib Bourguiba Hospital –Sfax.

** Pathology Department, Habib Bourguiba Hospital –Sfax.

K.Ayadi, .Ayadi, E.Daoud, Z.Mnif, K.Ben Mahfoudh, T.Boudawara J.Mnif.

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R É S U M É

Prérequis: Le carcinome adénoïde kystique représente approximativement 10% de l'ensemble des tumeurs épithéliales salivaires et survient le plus souvent au niveau de la parotide. L'invasion périnerveuse est habituelle, par contre, l'invasion et l'extension intranerveuse est moins fréquente.

But: Les auteurs rapportent un cas de carcinome adénoïde kystique de la parotide avec infiltration et extension à travers le nerf facial en insistant sur les aspects radiologiques.

Observation : Nous rapportons le cas d'un homme de 47 ans se présentant avec une masse submandibulaire droite évoluant depuis 4 ans. A l'examen physique, la masse était ferme non douloureuse et bien délimitée. Il n'y avait pas de paralysie faciale. L'imagerie par résonance magnétique (IRM), a montré une masse solide située au niveau du lobe profond de la glande parotide droite avec signes d'infiltration de la mastoïde. La masse montrait un rehaussement hétérogène. Le scanner à haute résolution sde l'os temporal (sans injection de produit de contraste) a montré dans les coupes coronales et axiales, un élargissement du segment mastoïdien du canal facial avec infiltration du nerf facial. L'examen anatomopathologique de la pièce d'exérèse chirurgicale a révélé des aspects histopathologiques de carcinome adénoïde kystique avec invasion intranerveuse du segment mastoïdien du nerf facial. Les limites chirurgicales étaient saines. L'évolution était favorable 5 ans plus tard.

Conclusion: Cette étude confirme que l'IRM grâce à son approche multiplanaire permet une détection rapide du carcinome adénoïde kystique. L'impact de l'invasion et de l'extension intranerveuse sur la survie demeure controversé.

M O T S - C L É S

Carcinome adénoïde kystique, glandes salivaires, imagerie par résonance magnétique, invasion nerveuse, nerf facial.

S U M M A R Y

Background: Adenoid cystic carcinoma comprises approximately 10% of all epithelial salivary neoplasms and most frequently involves the parotid. Perineural invasion is a common feature but intraneural invasion and spread is less common.

Aim : The authors report a case of parotid adenoid cystic carcinoma with invasion and spread via the facial nerve with an emphasis on radiologic features.

Observation : We report a case of a 47-year-old man presenting with a right submandibular mass evolving for 4 years. On physical examination, the mass was firm painless, well delineated. There was no facial paralysis. The magnetic resonance imaging (MRI) examination showed a right parotid gland solid mass located in the deep lobe of the parotid gland with mastoid bony involvement. The mass was heterogeneously enhanced. High resolution non contrast computed tomographie (CT) scan of the temporal bone showed in the axial and coronal cuts, a widening of the mastoid segment of the facial canal with involvement of the facial nerve. Pathologic examination of the resected specimen revealed histological features of adenoid cystic carcinoma with intra neural invasion of the mastoid segment of the facial nerve. The surgical margins were free. The evolution was favourable 5 years later.

Conclusion: This study confirms that multiplanar approach of MRI allows rapid detection of adenoid cystic carcinoma. The influence of intraneural invasion and spread on survival remains controversial

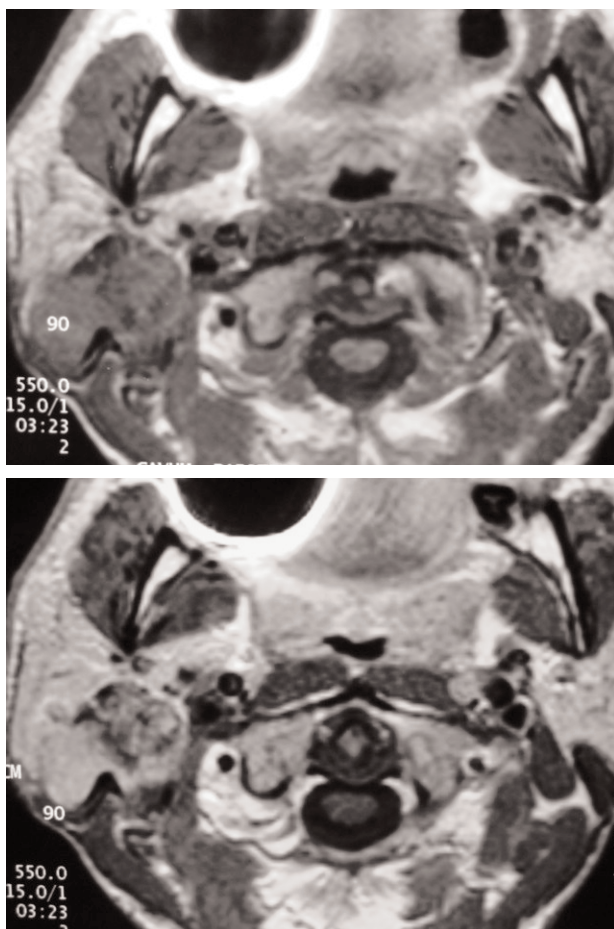
K E Y - W O R D S

Adenoid cystic carcinoma, salivary glands, magnetic resonance imaging, intraneural invasion, facial nerve.

Adenoid cystic carcinoma is a basaloid tumor consisting of epithelial and myoepithelial cells in variable morphologic configuration. This tumor involves most frequently the parotid. It has a relentless clinical course. Perineural invasion is a common feature but intraneural invasion and spread is less common. This study confirms that multiplanar approach of MRI allows rapid detection of adenoid cystic carcinoma. The influence of intraneural invasion and spread on survival remains controversial.

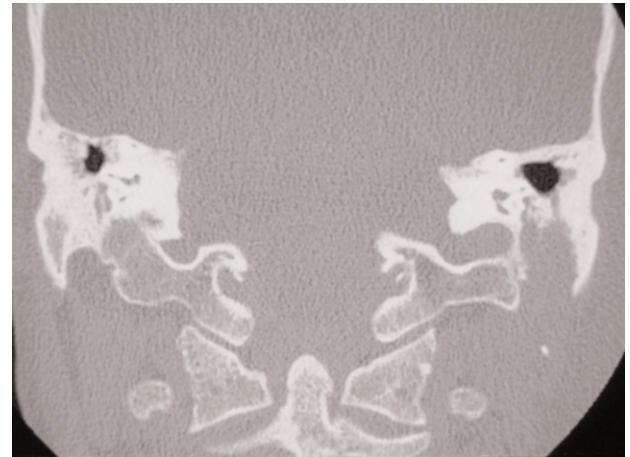
CASE REPORT

Mr F. B., a 47-year-old man was examined for a right submandibular mass evolving for 4 years ago, and increasing progressively in size. On physical examination, the mass was firm painless, well delimited, developing within the right parotidian gland. No skin changes nor regional lymph node enlargement were detected. No facial paralysis was observed. MRI examination was the first imaging investigation performed, using spin echo T2 and T1 weighted axial sequences before gadolinium injection (fig 1a). After



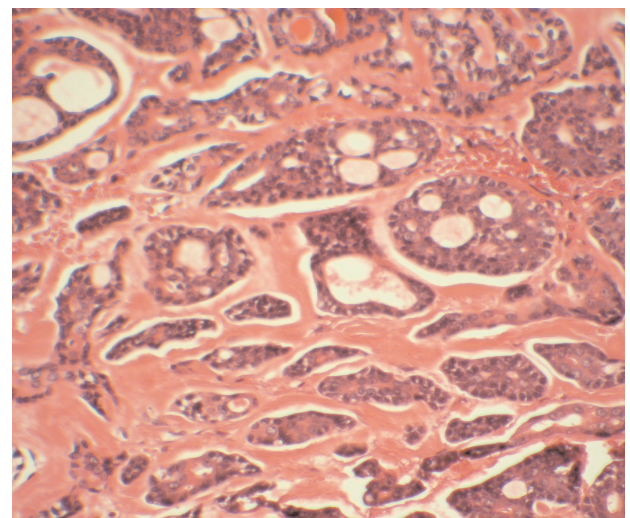
gadolinium IV injection, were performed T1 weighted axial sequences without and with fat saturation in the axial plane (fig 1b). The MRI examination showed a right parotid gland solid mass seated in the deep lobe of the parotid gland with evidence of mastoid bony invasion. The mass was heterogeneously enhanced. High resolution non contrast CT scan of the temporal bone showed in the axial and coronal cuts, a widening of the mastoid segment of the facial canal with involvement of the facial nerve by the contiguous parotid mass (fig 2). Surgical

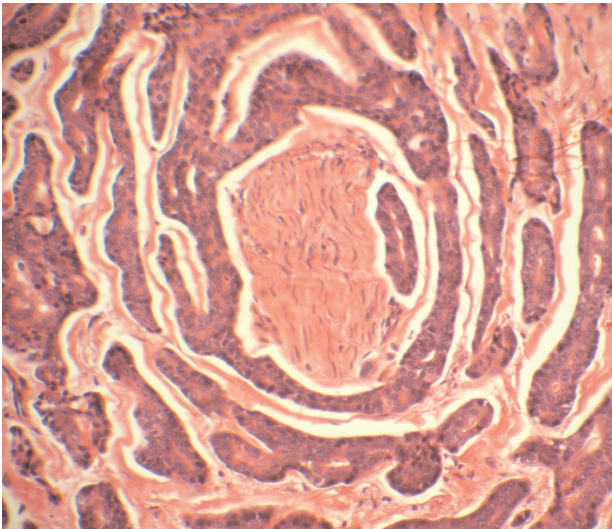
Fig.2: High resolution CT scan coronal cut through the petrous bone showing a marked widening of the facial canal mastoid segment.



findings confirmed the facial nerve involvement by the parotid mass. Pathologic examination of the resected tissue revealed histological features of adenoid cystic carcinoma and demonstrated perineural invasion of the mastoid segment of the facial nerve (fig 3). The surgical margins were free. No adjuvant therapy was given. The evolution was favourable without recurrence 5 years later.

Fig.3: Adenoid cystic carcinoma: (a): Tubular and cribriform proliferation composed of inner epithelial ductal and outer myoepithelial cells (HEX 200). (b): Note perineural invasion by the tumor (HEX 400).





DISCUSSION

Adenoid cystic carcinoma (ACC) of the salivary glands is a malignant epithelial tumor developing in the major and minor salivary glands. It was previously called "cylindroma". ACC is fairly uncommon accounting for almost 2 to 5% of all tumors in the parotid [1]. It frequently involve the parotid, submandibular and minor salivary glands and the minor salivary glands [1,2]. The tumor is mainly seen in the mid-forties and its presenting symptoms are a mass lesion, sometimes a dull pain and/ or paralysis of a cranial nerve especially the facial nerve [1] when the tumor is arising from the parotid gland. ACC has a marked tendency to invade nerves (perineural spread evaluated to 50 to 60% according to Yousem and al. [3]. This tumor is also well known to cause perineural tumor growth at presentation [2]. Perineural invasion is an almost invariably microscopic finding and definitely seen in the head and neck area, more often with primary squamous cell carcinomas of cutaneous origin, followed by ACC [2]. Parker and Harnsberger [4] in a series of 52 patients with radiologically documented perineural tumor, demonstrate that the second and third trigeminal nerves and the facial nerve were the most commonly involved with perineural

tumor. Both antegrade and retrograde perineural tumor spread were seen although retrograde spread is significantly more common.

The optimal methods for imaging perineural tumor infiltration depends on the involved cranial nerve. Both high resolution direct coronal CT and magnetic resonance show clearly the perineural tumor below the skull base [4]. Magnetic resonance imaging (MRI) best depicted skull base, cisternal and brain stem perineural tumor infiltration. According to Parker and Haarnsberger, T1 weighed MRI before and after administration of gadopentate dimeglumine is the method of choice in the investigation of perineural invasion. Whereas, Yousem and al. [3] suggest that visualisation of the tumoral infiltration around the cranial nerves to and through the skull base is probably best evaluated by using non enhanced and gadolinium enhanced fat saturated T1 weighted MRI sequences.

The appearance of perineural tumor spread includes thickening and abnormal enhancement or both along the main branches of these nerves, foraminal widening erosion and obliteration or both of the perineural fat pads [2,5]. Because of the risk of skip lesions within the nerves, negative surgical margins therefore has a little significance. The treatment of choice of ACC is a wide surgical resection with post operative radiation treatment for better local tumor control [1]. The long term outcome for patients with ACC is unfavorable with a relatively high recurrence rate that may be due to incomplete primary surgical treatment and a perineural tumor extension [1].

Références

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