



ORIGINAL ARTICLE

Accuracy of FNAC and CT in the Differentiation of Benign and Malignant Parotid Tumours in a Case Series[☆]



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KEYWORDS

Parotid;
Fine needle aspiration cytology;
Computerised tomography;
Accuracy;
Sensitivity;
Specificity

Abstract

Introduction: Parotid tumours, in addition to the wide variety of types, are histologically complex. Differentiating between benign and malignant tumours in preoperative diagnosis is important in deciding the type of surgery required. Fine needle aspiration cytology (FNAC) is a simple, quick, low-cost, low-invasive and well-tolerated tool used in the preoperative diagnosis of these tumours.

Material and methods: we calculated the sensitivity, specificity, predictive positive value (PPV) and negative predictive value (NPV) of FNAC and computed tomography (CT) in the differentiation of benign and malignant parotid tumours operated between 2010 and 2014 in the oral and maxillofacial surgery department of the University Hospital Miguel Servet.

Results: The sensitivity of FNAC is 50%, while the specificity is high, at 98.7%. FNAC offers high reliability in the diagnosis of malignant tumours, despite its low sensitivity. However, when the diagnosis is indeterminate or benign, other than pleomorphic adenoma or Whartin tumour, the reliability to exclude malignancy decreases.

Conclusion: The low sensitivity of FNAC to differentiate malignant from benign parotid tumours, means that we cannot rule out other diagnostic tests, clinical symptoms and especially the intra-operative vision of each surgeon. Especially when the diagnosis is indeterminate. Nevertheless, it is a technique used in a systematised way and helps in pre-surgical decision-making.

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PALABRAS CLAVE

Parótida;
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Tomografía axial
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Especificidad

Precisión de la PAAF (punción aspiración con aguja fina) y la TAC (tomografía axial computerizada) en la diferenciación de tumores benignos y malignos de parótida en una serie de casos

Resumen

Introducción: Los tumores de parótida, además de la gran diversidad de tipos que existen, son histológicamente complejos. Su diagnóstico preoperatorio, principalmente en cuanto a diferenciar tumores benignos de malignos es importante a la hora realizar un tipo de cirugía u otra. La punción-aspiración con aguja fina (PAAF) es una herramienta simple, rápida, y de bajo coste, poco invasiva y bien tolerada, que se usa en el diagnóstico preoperatorio de estos tumores.

Material y métodos: Sensibilidad, especificidad, valor predictivo positivo y valor predictivo negativo de la PAAF y la tomografía computadorizada (TAC) en la diferenciación de tumores benignos y malignos de parótida operados durante los años 2010 a 2014 por el Servicio de Cirugía Oral y Maxilofacial.

Resultados: La sensibilidad de la PAAF es de un 50%, baja, similar a los artículos publicados, mientras que la especificidad es alta, de un 98,7%. La PAAF ofrece una fiabilidad alta en el diagnóstico de tumores malignos, a pesar de su baja sensibilidad. Sin embargo, cuando el diagnóstico es no concluyente, o benigno que no sea adenoma pleomorfo o tumor de Whartin, la fiabilidad para excluir malignidad disminuye.

Conclusión: La baja sensibilidad de la PAAF para diferenciar tumores malignos de benignos en la parótida hace que no podamos dejar de lado otras pruebas diagnósticas, la clínica y sobre todo la visión intraoperatoria de cada cirujano. Sobre todo cuando el diagnóstico es no concluyente. A pesar de esto, es una técnica utilizada de forma sistematizada y que ayuda a tomar decisiones prequirúrgicas.

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Introduction

Parotid tumours are rare, with an annual incidence of 0.4–13.5 cases per 100 000 inhabitants. They comprise only 2%–6.5% of all neoplasms of the head and neck.¹ Although there is debate as to the use of fine needle aspiration cytology (FNAC) to screen for or detect parotid tumours. Both FNAC and ultrasound-guided FNAC (UG-FNAC) are basic procedures in the preoperative diagnosis of parotid gland tumours. FNAC is simple, fast, low cost, non-invasive and well tolerated. There are many studies on the accuracy of FNAC in distinguishing neoplastic from inflammatory processes, malignant from benign tumours, and these separately. In all of them, specificity is greater than sensitivity, especially in the case of malignant tumours. This is due to the great diversity of parotid tumours (42 according to the latest classification of the World Health Organisation), that are histologically complex, anatomopathologically detectable, and of all the tumours of the parotid gland only between 20% and 30% are malignant. Moreover, in the literature FNAC has the lowest rate of accuracy in the diagnosis of head and neck tumours.²

Material and Methods

The results obtained from FNAC, UG-FNAC and computerised axial tomography (CAT) in 323 benign parotid tumours operated by the department of oral and maxillofacial surgery during 2010 and 2014. Our inclusion criteria were all

operated parotid tumours, with previous FNAC and definitive biopsy, over said 4 years. Parotid tumours operated without previous FNAC, unoperated previous FNAC tumours and recurrences of previously operated tumours were excluded from the study. We collected as variables in our database for all the tumours that met the inclusion criteria: age, sex, preoperative FNAC and CAT results and definitive anatomopathological diagnosis of the surgical specimen. We used SPSS version 20.0 for the statistical analysis, studying sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and accuracy of FNAC, UG-FNAC in differentiating between malignant and benign tumours, with and without taking into account non-conclusive and non-diagnostic results of same. We also calculated the sensitivity and specificity of CAT and if it contributed anything to the result of FNAC, classifying the results into 4 categories: true positives: correct FNAC for malignant tumour; false negatives: negative FNAC for malignancy and diagnosis of a malignant tumour as benign, false positives: positive FNAC for malignancy in a benign tumour and true negatives: FNAC accurate for a benign tumour or non-neoplastic process. The exclusion criteria were tumours operated without previous FNAC, with a previous diagnosis of malignancy or recurrences.

Results

Of the 323 operated parotid tumours, 282 were benign and only 42 malignant. The most frequent of the benign tumours

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