Acta Otorrinolaringol Esp. 2014;65(4):219–224

Acta Otorrinolaringológica Española

www.elsevier.es/otorrino

ORIGINAL ARTICLE

Clinical and Radiological Evolution of a Group of Untreated Acoustic Neuromas☆

Vicente Escorihuela-García,* Ignacio Llópez-Carratalá, Miguel Orts-Alborch, Jaime Marco-Algarra

Servicio de Otorrinolaringología, Hospital Clínico Universitario de Valencia, Universidad de Valencia, Valencia, Spain

Received 10 November 2013; accepted 12 January 2014

KEYWORDS
Acoustic neuroma;
Vestibular schwannoma;
Sensorineural hearing loss;
Unilateral hearing loss;
Tinnitus

Abstract
Introduction: The acoustic neuroma is a benign tumour that originates in the vestibular branch of the eighth cranial nerve. The main treatment is surgery, but many authors suggest that with elderly patients or in small neuromas we can opt for watchful waiting.
Methods: This was a retrospective study from 2007 to 2013 that included 27 patients diagnosed of acoustic neuroma that had not been treated due to the size of the tumour, age and comorbidities, or by patient choice. We evaluated overall condition, hearing thresholds, degree of canal paresis and central disorders.
Results: After 6 years of follow up, clinical manifestations of 18 patients remained unchanged, 5 patients underwent hearing loss and developed tinnitus, 2 cases had more intense tinnitus and 2 cases had dizziness. The radiological controls by magnetic resonance imaging showed that the initial maximum diameters (5–16 mm) increased by 1.7 mm on average, with annual growth rates below 0.5 mm.
Conclusion: In selected cases, such as for small neuromas and in elderly patients, the conservative option of close monitoring with magnetic resonance imaging is an important alternative given that, in our cases, clinical features and radiological image did not suffer major changes. If there were any such changes, therapeutic options could be proposed.

PALABRAS CLAVE
Neurinoma del acústico;

Evolución clínica y radiológica de un grupo de neurinomas del acústico no tratados

Resumen
Introducción: El neurinoma del acústico es un tumour benigno que se origina en la rama vestibular del VIII par craneal. Su tratamiento de elección es quirúrgico, pero muchos autores

☆ Please cite this article as: Escorihuela-García V, Llópez-Carratalá I, Orts-Alborch M, Marco-Algarra J. Evolución clínica y radiológica de un grupo de neurinomas del acústico no tratados. Acta Otorrinolaringol Esp. 2014;65:219–224.

* Corresponding author.
E-mail address: zingaro85@hotmail.com (V. Escorihuela-García).

Schwannoma vestibular;
Hipoacusia neurosensorial;
Hipoacusia unilateral;
Acúfeno

defienden que en pacientes de edad avanzada o en neurinomas de pequeño tamaño se puede optar por simple vigilancia.
Métodos: Estudio retrospectivo, del 2007 al 2013, que incluye a 27 pacientes diagnosticados de neurinoma del acústico que no fueron tratados, bien por el tamaño del tumour, por la edad y las comorbilidades asociadas, o por decisión del paciente. Se evaluaron el estado general, los umbrales auditivos, el grado de paresia canalicular y las posibles alteraciones a nivel central.
Resultados: A los 6 años de seguimiento, la clínica –hipoacusia (70%), acúfeno (15%) y vértigo (4%)– de 18 pacientes se mantuvo sin variaciones; 5 casos experimentaron caída del umbral auditivo y desarrollaron acúfeno, 2 casos intensificaron su acúfeno y 2 casos presentaron vértigo. Los controles radiológicos por resonancia magnética demostraron que los diámetros máximos iniciales (5–16 mm) se incrementaron en 1.7 mm como media, con tasas de crecimiento anual inferiores a 0,5 mm.
Conclusión: En casos seleccionados, neurinomas de pequeño tamaño y pacientes de edad avanzada, la opción conservadora mediante vigilancia estrecha con resonancia magnética es una alternativa importante, puesto que, según nuestra muestra, ni la clínica ni la imagen radiológica sufren cambios significativos y, en caso de que lo hagan, siempre estamos a tiempo de una actuación terapéutica.

Introduction

Cerebellopontine angle tumours account for around 10% of intracranial tumours.[1] Vestibular schwannomas or acoustic neuromas are the most frequent of these, representing 80%–90%.[2] Vestibular schwannoma is prevalent throughout the world, regardless of race. Incidence is similar in the different communities at 0.01 per 1000 inhabitants/year (1 case per 100 000 inhabitants/year)[3,4]; in Spain, incidence may be extrapolated, with 400 new cases being diagnosed each year. Incidence of neurofibromatosis type 2 is lower, with one new case per million inhabitants per year. The ratio of acoustic neuroma cases associated with neurofibromatosis type 2 compared with sporadic unilateral neuroma is 1:10. The incidence of neurofibromatosis type 1 or von Recklinghausen disease is higher (one new case per 40 000 inhabitants/year), although the neurofibromatosis type 1 associated with acoustic neuroma is very infrequent, with few cases diagnosed worldwide.

Acoustic neuroma is a tumour which grows from Schwann cells, from the vesticular nerve myelin sheath; it grows in the area adjacent to the Scarpa's ganglion, on the inside of the internal auditory canal. The proliferation of these cells lead to the formation of the tumour, which compress the vestibular nerve axons and also spreads to the adjacent nerves (cochlear and facial).

The tumour is the same in sporadic unilateral form or bilateral hereditary form (neurofibromatosis type 2); however, this hypothesis does not explain why, according to histological studies, the hereditary form is more aggressive, with greater capacity for infiltration of the adjacent facial and cochlear nerves; clinical evidence confirms this, showing that there is higher growth capacity of the form associated with neurofibromatosis type 2 and cases undergoing radiosurgery, in which results in hereditary forms are markedly worse than in lateral acoustic neuroma forms. In either of the 2 forms, the acoustic neuroma tends to dilate the internal auditory canal, albeit not constantly, and when it spreads to the cerebellopontine angle, it occupies the cistern, and comes into contact with the brainstem and cerebella, compressing the fourth ventricle and leading to hydrocephalus and intracranial hypertension symptoms. Hearing and vestibular function are usually affected in early stages, but facial nerve function is preserved intact, even in large tumours, except in exceptional cases.

Vesticular schwannoma is a rare case with regards to development and growth. Therapeutic implications are very clear, yet it leads to one of the greatest controversies over decision-making in diagnosed cases. Tumour growth is generally slow. Extensive acoustic neuroma studies with patients who underwent surgery show a mean increase in diameter of 1–2 mm per year. However, no correlation exists between tumour growth and age, gender, tumour size at diagnosis and clinical manifestations of the patient; correlation only exists between the growth rate and the proportion of cells in the replication stage. This information will only be useful in tumours which have been operated on where residual tumour has remained or been left.[5]

Pre-operative suspicion must be high regarding any audiological or vestibular manifestations of a unilateral or asymmetrical nature (hearing loss, sensoineural hearing loss, vertigo or instability) and investigation should take place. The use of brainstem auditory evoked pontentials is still a useful detection method, particularly in cases of lower clinical significance, such as tinnitus or minor asymmetries in the audiogram, and in elderly patients.[6–8] However, immediate use of MRI does tend to be made, which is invaluable to diagnosis. Furthermore, systematic use of MRI for headaches and other neurological conditions has led to the diagnosis of asymptomatic vestibular schwannomas, even when there is no alteration of auditory brainstem evoked potentials.

The treatment of choice is surgery, immediately following diagnosis if possible, since, according to several authors, the smaller the tumour, the better the results obtained from surgery. On the contrary, many other authors defend watchful waiting for elderly patients or when neuromas are small.[9]

The aim of our study was thus to comment upon the clinical and radiological evolution of 27 patients diagnosed with