Fractionated stereotactic radiotherapy for vestibular schwannoma (FSRT)

Surgery is the mainstay of treatment and only after the introduction of single-fraction stereotactic radiosurgery (SRS), radiotherapy emerged as an alternative viable option. In a review, Kalogeridi et al., focused on SRS or conventionally fractionated stereotactic radiotherapeutic (FSRT) approaches. They described the results of different doses used for SRS and FSRT, the current status, and a comparison between the two radiotherapy approaches. Stereotactic radiotherapy techniques aim to control tumor growth with minimal toxicity. SRS using either a cobalt unit or a linear accelerator has given high rates of tumor control and of cranial nerve function preservation with marginal doses range of 12-14 Gy. Fractionated stereotactic radiotherapy (FSRT) is optimal for tumors larger than 3 cm. Doses as low as 50.4 Gy provide excellent control rates and low morbidity. Overall, both SRS and FSRT are equally effective and safe options for vestibular schwannoma patients who do not need immediate surgical decompression [1].

A retrospective analysis included 162 patients who underwent radiation therapy for sporadic vestibular schwannoma (VS). Measurements on T1-weighted contrast-enhanced MRI (in 2-year post-therapy intervals: 0-2, 2-4, 4-6, 6-8, 8-10, 10-12 years) were taken for total tumour volume (TTV) and enhancing tumour volume (ETV) based on a semi-automated technique. Patients were considered non-responders (NRs) if they required subsequent microsurgical resection or developed radiological progression and tumour-related symptoms.

Median follow-up was 4.1 years (range: 0.4-12.0). TTV and ETV decreased for both the Fractionated stereotactic radiotherapy FSRT and SRS groups. However, only the FSRT group achieved significant tumour shrinkage ($p < 0.015$ for TTV, $p < 0.005$ for ETV over time). The 11 NRs showed proportionally greater TTV (median TTV pre-treatment: 0.61 cm3, 8-10 years after: 1.77 cm3) and ETV despite radiation therapy compared to responders (median TTV pre-treatment: 1.06 cm3; 10-12 years after: 0.81 cm3; $p = 0.001$).

3D quantification of VS showed a significant decrease in TTV and ETV on FSRT-treated patients only. NR had significantly greater TTV and ETV over time [2].

Fractionated stereotactic radiotherapy (FSRT) may preserve normal function and control both small and large vestibular schwannoma [3].

1)
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2)
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3)

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