Purpose. We retrospectively evaluated it with Elekta Synergy VMAT and a patented system to achieve high quality fusion image and immobilization.
Methods. The procedure improved thermoplastic immobilization by means of a sub-mask (eXaSkin by Anatomical-Geometry). A similar number of CT and axial magnetic resonance images were acquired with the same immobilization. It is possible using eXaFrame system. The treatment was designed with the inverse module for VMAT of Pinnacle v.9.2 (SmartArc), with multiple arcs performed with Elekta Synergy. The dose scheme employed is the Lagerwaard one: [WBRT (20 Gy) + SIBmts (40 Gy)]/5 frac . Daily patient positioning was checked with IGRT (Elekta XVI). First step is WBRT: two arcs VMAT CCW (178–60° and 300–182°) with the following objectives: brain (Dmax = 21 Gy, weigh = 100 and Dmin = 20 Gy, weigh = 50), eyes (Dmax = 10 Gy, weigh = 1). Later on, we focused on metastases separately: we block the optimization prophylaxis (Optimization Type None) and create three structures: VI1 = PTV (mts1) + 5 mm, VI2 = PTV (mts2) + 5 mm, Epx = encéfalo-VI1-VI2. The objectives were: PTVi (Dmax = 44 Gy, weigh = 100 and Dmin = 40 Gy weigh = 50), Epx (Dmax = 30 Gy) and brain stem (Dmax = 23 Gy). Treatment verification was performed with the Compass-Matrixx system.
Results. Until now we have treated 11 patients, being the differences in fusion images less than 1 mm and mean IGRT correction of 1.24 mm. No acute toxicity and hair problems. Of the 11 patients treated 7 are alive without brain progression or neurological toxicities, 3 died after systemic progression of the disease and 1 of them because of complications associated with systemic treatment. Total time spent on the process, including contouring, treatment design and verification, without considering the learning curve, is about 7 h.
Conclusions. Hypofractionated stereotactic radiotherapy with eXaFrame and eXaSkin in patients with up to three brain metastases with IGRT and VMAT is a workable solution. It's a rapid and accurate technique that has a higher conformity index than conventional summation of WBRT and radiosurgery boost.

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Treatment of vestibular schwannoma with fractionated stereotactic radiotherapy (FSRT)

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Introduction. The swannomas are benign tumors of neural tissue that can be treated with surgery, radiosurgery or FSRT.
Objective. Analyze the results of auditory toxicity and treatment complications of vestibular schwannomas at our institution.
Materials and methods. Between 2004 and 2011, 95 patients have been evaluated for treatment with FSRT, with a median age of 57 years. Tumor size was less than 1 cm in 14.7% of patients, between 1 and 1.99 cm in 35.8%, between 2 and 2.99 cm in 33.7%, between 3 and 3.99 cm in 9.5% and greater than 4 cm in 6.3%. The hearing before treatment was normal in 4.2%, with loss of less than 30 dB in 52.6%, greater than 30 dB loss in 25.3% and deafness in 17.9%. 80.9% of patients had not undergone surgery, while 14.9% they were been intervened once and 4.3% twice. Balance remained intact in 63.2% of patients with mild disease in 25.3% and severe in 11.6%. Matthies classification: 23.2% of patients were T1, 26.1% T2, 31.9% T3 and 18.8% T4. The treatment has been performed in 72 of the 95 patients evaluated, excluding those who lacked the teeth necessary for inmovilization with the Gill–Thomas–Cossman's guide. The therapy has been performed with cone in 83.3% of patients and with multileaf in 16.7%. The median dose was 54.78 Gy with a median treatment duration of 42 days.
Results. Hearing after FSRT remained unchanged in 81.9% of patients, improved in 4.2% and worsened in 13.9%. Most patients had no complications (95.8%), with edema of trunk in 1 patient and radiation necrosis in 2 patients. Complications ocurred in patients who had previously been operated.
Conclusion. FSRT is an effective treatment in vestibular swannomas with hearing preservation greater than surgery, and with low complication rate.

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Trigeminal neuralgia radiosurgery with linac at Meixoeiro hospital, commissioning and experience

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Introduction. Trigeminal neuralgia (TN) incidence is 4.5/100,000 and is highly disabling. Most cause of the classical (idiopathic or essential) is vascular. 30 years ago a Spanish center performed the first treatment of TN (Dr Larrea). The SRS is used when medication or other methods are not effective. SRS is also used in patients with medical co-morbidities.
Objectives. Demand arising in our center led to commissioning and first 5 pilot cases at Meixoeiro (CHUVigo) as described below.