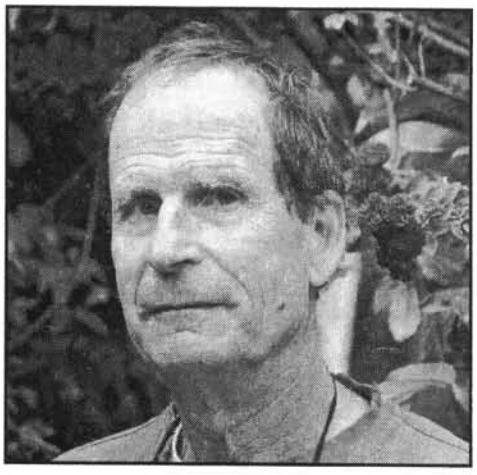
AMNET NEWS

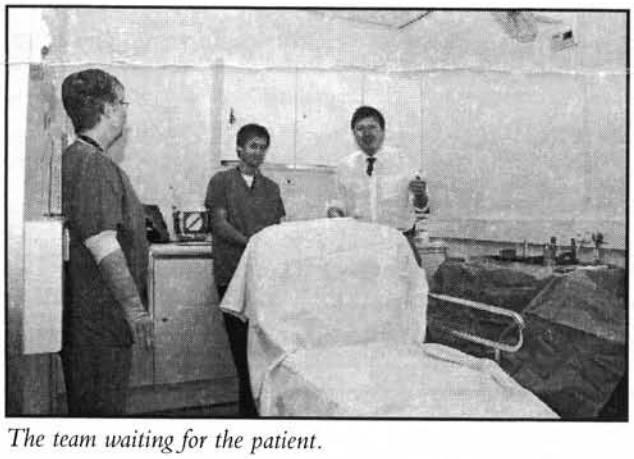
Newsletter of the Acoustic Neuroma and Meningioma Network
Autumn 2008
Issue 44

Most of you will remember Peter Lawrence's article in an earlier newsletter about his search for information after being diagnosed with an acoustic neuroma. He has now provided me with the sequel. He also raises some arguments against points made by Mr Moffat in his talk to us last Christmas.

Peter Lawrence and his acoustic neuroma



It was about 18 months ago when I wrote in Amnet news. I had a "moderate" acoustic neuroma and I had decided to go for stereotactic radiosurgery (GKRS), and I had chosen the unit in Sheffield, the only NHS unit in the country and specifically Mr J Rowe, as I liked the cautious and objective way he weighed up the evidence both when he talked to me and when he wrote his papers.



The team waiting for the patient.

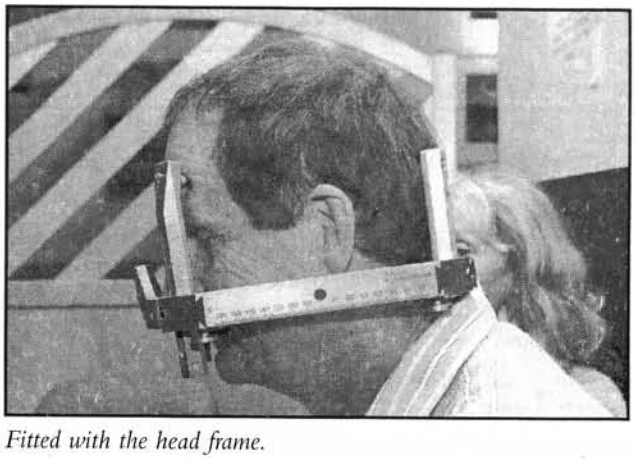
The advice of both Mr Rowe and Mr Moffat in 2006 was not to undergo GKRS unless the tumour was found to be growing. But by spring it was clear that the alien had been growing, slowly. When first found it was about 0.9 cubic centimeters, but 18 months later it had reached about 1.3 cubic centimeters. Mr Rowe advised me to go ahead with the GKRS as the smaller the tumour the more effective the treatment.

I had this treatment in June 2008 and I took some pictures and handed my camera around to provide a record.

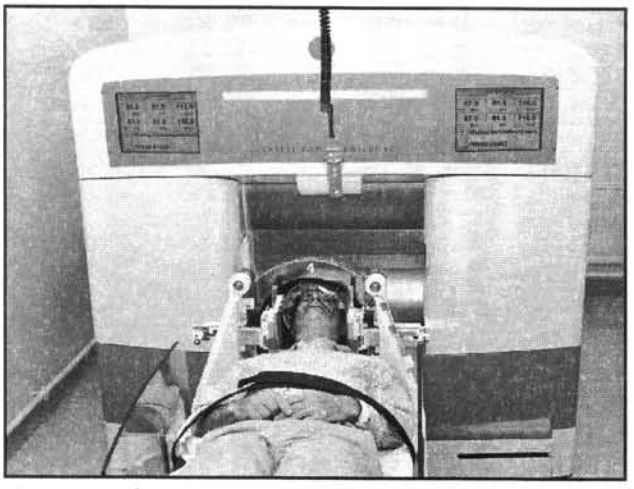
They gave me a gentle sedative pill that helped I am sure. Then the frame is attached, this was done out of my sight, and so you sit in a chair and all you feel is stinging from the local anaesthetic and before you know it you have a frame screwed into the skull in 4 places. Mr Rowe said it would feel like a hat, and I didn't really believe him, but once I was off the chair, my skull was numb and the truth is it felt like the radiohat I listen to cricket with when gardening.

Then into an MRI machine to get a 3D picture that precisely places the tumour vis a vis the frame. A few minutes in there followed by a period of waiting while the physicists use fancy software to work out a "treatment plan". The aim is to irradiate the tumour with a hefty dose that will seriously damage it while sparing the brain, not even the important nerves that adhere to the tumour (thankfully they are never buried in the tumour). The principle is to send 201 pencil-thin beams of irradiation with sharp edges that come in from different directions and only meet on the tumour itself. The tumour is irradiated piece by piece until it is all done. And the sources of the pencil-thin beams are varied by moving, under computer control, the head slightly vis a vis the beams, so that any piece of brain is only hit by one of these beams. The diameter of the beams can be varied, by varying hole sizes in the collimator (This is the metal hemisphere you see in the picture to which me and my frame is locked). Cells are supposed to tolerate about 1.8 grey pretty well, and the dose at the tumour edge is fixed at 12 grey, so it should have been properly cooked.

Anyway, I lay on the machine and two radiologists, who were brilliant, fixed my frame to the collimator, left the room and I was moved into the machine, the collimator docked with the source of gamma rays for about 4 minutes, then there was a pause and my head was moved almost imperceptibly to a new position and another part of the



Fitted with the head frame.



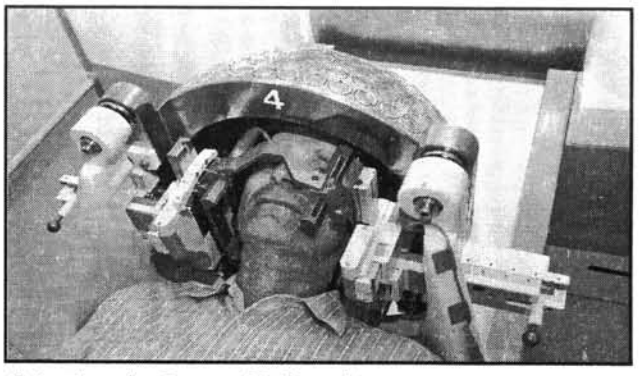
Gamma Knife machine.

tumour was targetted. This was repeated 5 times. Then out again, changing the collimator to a smaller one, to hit two outlying bits with smaller beams, and that was that. The frame was then removed and it was all done.

I was told to rest up a little, not wash my hair for three days so that the holes on my scalp could heal. We went out for supper at a restaurant immediately afterwards and I drove home to Cambridge the next day and was back in the garden with my radiohat on by lunchtime. I thought that if there were to be any nerve damage I would detect it immediately, but not so, any nerve damage will not show for 6-9 months. Mr Rowe thinks my hearing may deteriorate (and this is expected, with or without the treatment) but there will be no damage to my facial nerve.

If GKRS works as well as neurosurgery for acoustic neuromas, and the modern literature argues that it does, with similar relapse rates of some 3-5% then there is no contest. I am back at work the day after and I have good hearing on both sides. GKRS is a doddle compared to a big skullbase operation.

It is now September and I feel just as I was before the radiosurgery and hear just as well. Obviously I don't know what the future will bring, but there are plenty of grounds to be optimistic.



Going into the Gamma Knife machine.

Mr Moffat raised some arguments against GKRS in his talk to AMNET last year Peter puts these points in response:

1. ***"the reported results may be spurious".***

   This is true, but it applies equally well to the results of neurosurgery which are just as difficult to collect objectively and to make comparative assessments over long periods. The best comparison is the Mayo Clinic study which concluded that "GKRS should be considered the best management strategy for the majority of AN patients"

2. ***"The tumour swells following GKRS".***

   There is some swelling with some tumours but is not a problem in practice. Mr Rowe had had only one case from about 1300 where the GKRS had failed and a swollen tumour had to be removed by surgery.

3. ***"Hydrocephalus has been reported in 2-6% of patients following GKRS".***

   What this means is not so clear. In a Sheffield series of 234 consecutive patients, 3 patients required a shunt an average of 16 months after radiosurgery; however it cannot be concluded that the need was caused by the radiosurgery as 9 patients had required shunting before the radiosurgery (because of their acoustic neuroma). How to interpret these and other data? There is a strong correlation between tumour size and the likelihood of requiring a shunt either with or without radiosurgery; the larger tumours being more likely to give rise to hydrocephalus. Complicating the issue is a change in practice, nowadays smaller tumours are detected and treated with GKRS. Nevertheless, when treating patients with larger tumours, patients and clinicians should be aware that hydrocephalus may be a risk.

4. ***"Malignancy might be induced by irradiation".***

   This was a worry but there was never any convincing evidence and now an objective study of 30,000 patient years has shown that the frequency of malignant tumours is not different from a control untreated group.

5. ***"Facial nerve preservation is poorer when surgery follows failed GKRS".***

   This argument can be turned equally well on its head, as treatment by GKRS following failed surgery is also problematic. The key information is the frequencies of failures of different kinds from both approaches, the trauma and the risks associated with both kinds of interventions and the quality of life for patients thereafter and for that I refer readers again to the Mayo Clinic paper which comes down unequivocally for GKRS for small tumours. Even in that paper it would be nice if both groups of patients had been followed up longer, so questions will remain for some more years. But clinicians are becoming more scientific in the way they gather and assess results and (at last) all would probably now agree that this is the only way forward.