When I was young, I trained as a physician and went on to specialise in psychiatry and neurology, but it has been many years since I have been a practicing doctor. The contribution I am trying to make to the medical world now is a very different one: helping to build a facility that will bring proton beam therapy to the wider public.

Proton beam therapy will, I believe, revolutionise the way we treat cancer. The key point of difference between this and other forms of radiotherapy is our ability to target cancers while avoiding causing damage to healthy tissue. In other types of radiotherapy, the radio waves continue to travel through the body once they have passed through the tumour, causing harm to healthy tissue as they go. In proton beam therapy, the energy carried by the protons peaks as it reaches the target. This allows us to give higher dosages to the tumours but cause less damage to healthy surrounding tissues in the process.

In 2013, Advanced Oncotherapy acquired the first medical spin-off from the European Organisation for Nuclear Research (CERN). Many of the world’s best physicists, mechanical engineers and computer engineers are developing cutting-edge technologies at CERN, and working with them has been a once-in-a-career privilege. The technologies we have access to are known collectively as ADAM, which stands for ‘accelerators and detectors as applied to medicine’. These have been used to develop the particle accelerators which are the basis of the particle beam therapy we are using.

As executive chairman, I’m involved in developing the strategy of Advanced Oncotherapy. I spend my time anticipating what the next steps will be, both in processes and technology: what will version 2.0 or 3.0 of this therapy look like, and how do we prepare for their arrival? I work closely with the CEO, Nicolas Serandour, and his team in financing the company and I also spend time liaising with academics from all over the world. This is a key part of the role, because it helps us to develop relationships and embeds us within the thinking and planning of institutions that might seek to harness our technology in the future.

Rather than going to a hospital or a big medical institution and saying: ‘I’ve got this wonderful piece of kit, please buy it’, the relationships we are building mean that the conversations are more like: ‘We are involved in developing this new type of particle accelerator and we’d like to collaborate with you in doing research on its therapeutic uses, either in real life or simulation.’ The expectation is that over a period of time the very significant technical and clinical advantages of our technology over any thing else available in the oncology field will become so compelling that they decide to include it in their offering.

We decided to come to the Harley Street Medical Area partly because it is such an iconic medical location, and partly because The Howard de Walden Estate has been incredibly helpful. Of course, people often wonder why we would be doing this here in central London when there are plenty of green field sites outside the city. Traditional circular accelerators used in radiotherapy are large machines that need huge amounts of land and shielding, but our proton beam accelerator is much more compact than you might expect. We took the view that if we could put our machine into the basement of two terraced houses in the middle of a global city, people will realise that we can put one just about anywhere. Everybody in the medical world knows the Harley Street Medical Area brand and they are going to be impressed when they arrive at a terraced house a few minutes’ walk from Oxford Circus.

At a conference about four years ago Dr Jay Loeffler of the Harvard Medical School said that if the cost of proton beam therapy comes down to the same cost as x-ray therapy, then within 10 years, 100% of cancer patients having radiotherapy will have it delivered by protons. This is why much of our focus is on bringing the costs down—not only the capital cost of installation but also the cost per treatment.

There are currently only about 80 centres offering proton beam therapy, which means about 200 treatment rooms worldwide. With the estimated need being about 9,000 rooms, you can see that we are barely scratching the surface. We believe that this is a technology that has the capability in the future to reach many more people—people for whom traditional radiotherapy has been out of reach, both financially and geographically. This is one of the main reasons the team and I are so committed to this project.

Interview: Viel Richardson

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