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Modern medical imaging in a brand-new modern hospital

One of the biggest private clinics in the Basque country in Spain, the brand new IMQ Zorrotzaurre Hospital in Bilbao, is a benchmark hospital in terms of innovation and medical technology. The clinic has recently installed some new diagnostic MRI equipment. We wanted to find out more about the clinic in general and the equipment in particular so we spoke to Dr G. Solís, head of the Department of Diagnostic Radiology.



Dr G. Solís is head of the department of diagnostic radiology of the IMQ Zorrotzaurre hospital in Bilbao in the Basque area of Spain.



Opened in 2012 the IMQ Zorrotzaurre Hospital has striking architecture and is a perfect fit for its situation on the river Nervion, which runs through downtown Bilbao. The famous architects Carlos Ferrater and Alfonso Casares were responsible for the design which means that all patients' rooms have a great outlook on the Zorrotzaurre area of Bilbao. The new facility is a major development of the "new Bilbao" and also a solid commitment to healthcare and medicine in the Basque Country.

In November 2013 the Clinic was accredited by the Joint Commission International – a prestigious recognition of quality and patient safety. The hospital is the first – either public or private – to be so accredited in the Basque Country and only the eighth in Spain.

Q. *Let's start at the beginning. Please tell us about your hospital.*

As you can see from the picture, our hospital, the IMQ Zorrotzaurre Hospital is a strikingly modern building designed by the famous architects Carlos Ferrater and Alfonso Casares. The building is polyhedral in shape, with the geometry changing from one floor to another, resulting in an overall spectacular structure which in practice means that all the patients' rooms are arranged to take advantage of the best possible views. And since the hospital is located in the Zorrotzaurre area of Bilbao, the views are splendid. This is a famous part of the town, opposite the Euskalduna Palace and on the Zorrotzaurre peninsula on the banks of the river Nervión, which runs through Bilbao.

But of course although much appreciated, great location and striking architecture do not alone make a good hospital. What matters is the services the hospital can provide to its patients.

Our hospital is a private 171-bed hospital with only single rooms and no fewer than 15 suites designed for the maximum comfort of patients and their families. Overall the hospital covers more than 40.000 m² and has intelligent operating theatres, with minimally invasive Da

Vinci robotic capacity, cardiovascular surgery, a hemodynamic suite. For radiotherapy and radiosurgery we have the latest generation of linear accelerators (in 2014 we inaugurated a new state-of-the-art TRUEBEAM accelerator). The hospital provides 24 hours emergency service; we have an adult ICU and a neonatal intermediate care unit, as well as maternity services and surgical and oncology day-hospitals.

We serve an area with a population of over 330 000 inhabitants and interact closely with the public health services of the area.

Every year we have more than 22 000 admissions with a total of more than 58 000 hospital-days of patient care: There are more than 81 000 emergency out-patient visits for adult, pediatrics or obstetrics cases.

Q. *Very impressive but what about the radiology services to support all this? What personnel and equipment do you have to provide the service expected of you?*

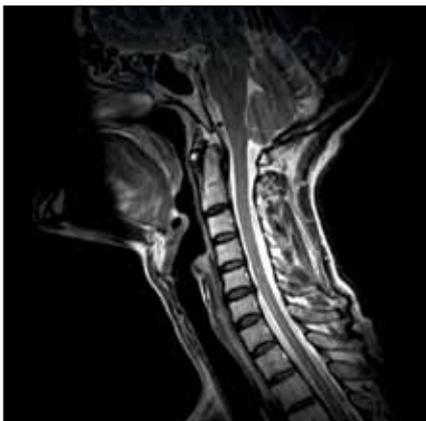
The Department of Diagnostic Radiology was formed three years ago. We are fortunate in having state-of-the-art technology in all the imaging modalities. We are totally committed to providing excellence in clinical imaging and make a point of not being a isolated service

unit but instead we are integrated fully with the medical and surgical functions available at IMQ Zorrotzurre. The aim of our radiology department is quite simply to provide the highest quality diagnostic and treatment imaging services in a caring, safe and efficient environment.

To do this we have a team of 16 radiologists and 42 radiographers and technologists together with 20 support staff. Altogether we carry out 120 000 examinations each year. We use modern systems and protocols from the major manufacturers of imaging equipment. We have dedicated workstations for image processing, a digital environment for processing and viewing images as well as integrating multiple modalities. Data and images are stored in electronic medical records.



We have found that our open-bore MRI system can carry out all types of MRI examinations including cardiac and that such exams do not take any longer time than those carried out using a closed tunnel MRI system.



The image quality from the open magnet MRI system is very high. In particular the high quality of Musculoskeletal images is appreciated by our referring physicians and is driving more referrals to our department.



The great advantage of the open format of the Hitachi Oasis MRI system is that even claustrophobic patients can be successfully examined without the need for anesthesia and in some cases with no sedation at all. In addition the ability to always have the region of interest in the center of the magnet means that scan times are decreased. We get better quality images and there is no need to rescan patients because of movement, size or other considerations.

In addition to trying to provide a full range of general diagnostic imaging and therapeutic services, we have a strong commitment to the development of subspecialty expertise for example in oncology imaging. As I have said, in general we are very well equipped. As far as specific imaging equipment is concerned in addition to basic CR and DR radiology systems and ultrasound scanners, we have two Magnetic Resonance Imaging systems, two CT Scanners, plus a modern tomosynthesis mammography unit and an interventional ultrasound system.

We also have a vascular/interventional radiology system while in nuclear medicine we have a PET/CT scanner.

Q. *In addition, you have recently acquired an Oasis MRI system. Since when has it been up and running? How have you found it?*

When the new clinic opened in May 2012, we in fact carried out all our MRI examinations using a new 1.2 Tesla open architecture system from Hitachi. (Later on we complemented this with a closed magnet MRI system, a 1.5 T Avanto Siemens machine which we recovered from the old clinic). Since 2012, we have carried out more than 12 000 examinations in the open vertical-field magnet.

This open-bore equipment is able to do all kinds of MRI examinations, even cardiac exams, and we have found

no significant difference in the amount of time that such examinations take compared to similar examinations in the closed magnet system.

The Oasis system is highly appreciated by our patients and has made scheduling of our MRI cases much more flexible. We are able to handle many claustrophobic patients without any need for anesthesia and in some cases, with no sedation at all.

We are really impressed with the fast gradients, the multi-channel RF coils and the patient comfort. Being able to have the region of interest in the center of the magnet means decreased scan times and better quality images. Also there are very few times when we need to rescan patients because of movement, size or other considerations.

The image quality is better than we expected. In particular its specialized capabilities in musculoskeletal imaging are driving referrals to the Department.

So all in all, a huge benefit not just for the patients but also for the Hospital.

Q. *So how do you see the future?*

Simple. For the future our priority is to develop into a University Hospital where we can combine research and educational programs together with excellence in clinical imaging to provide outstanding patient care. With our current imaging systems we are already well placed to achieve this aim.

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