News

Technological advances in Panama

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Panama makes history in Latin America's medicine

The history of radiotherapy in Panama, dating back to the 20s, as shown in the following image (Figure 1 & 2). It's been over 90 years and now that our country, after spending 20 years behind in technology in the field of radiotherapy, mark important dates in Latin America. This initiative came about two young neurosurgeons, *Walter Kravcio* and *Rodolfo Alcedo*, eager to implement the latest technology, using True Beam STx, with new benefits to treat patients with procedures called radio surgery and stereotactic radio therapy. Then latter a noninvasive method of treating tumors with high doses of radiation, which, with the help of Exac Trac System Brain Lab with Frameless system, which offers patients greater comfort and speed during the administration of treatment.

http://www.radiocirugiapanama.blogspot.in/2013/02/truebeam-stx.html

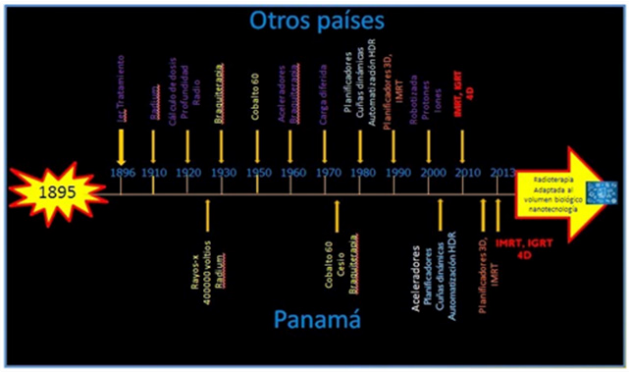

Figure 1 The history of radiotherapy in Panama.

Figure 2 Linear accelerator true beam STx Latin America.

Abbreviations: PET-CT, positron emission tomography-computaricada tomography; SRT, stereotactic radiotherapy; SRS, stereotactic radio surgery; HIM, high intensity modulated; AVMs, arterio venous malformations

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In the diagnostic area in the 2013 Panama becomes the first country in Central America to have a *cyclotron of Radio pharmacy Central in the City of Knowledge.*

http://ciudaddelsaber.org/es/fundacion/afiliado/radiofarmacia-centroamerica-s-a/558

The September 14, 2013 Panama reaches the first team Positron Emission Tomography/Computaricada Tomography (PET/CT) of the country, the *Novalis Treatment Center in Punta Pacifica Hospital,* which has revolutionized many fields of medical diagnosis, adding precision of localization anatomic of functional imaging, than that previously lacked a PET pure. For example , in oncology , surgical planning , radiation and cancer staging have been changing rapidly under the influence of the availability of PET-CT, to the extent that many of the procedures imaging and centers have been gradually abandoning the conventional devices of PET and replacing them by PET- CTs. Although the combined device/hybrid is considerably more expensive, has the advantage to provide both functions autonomously, being, in fact, one two devices.

On November 1, 2013, takes place in the National Hospital, private hospital in the city of Panama, with the 1st Stereotactic *Radio surgery* in Panama. The same was done using circular cones for radio surgery, a linear accelerator adapted to *Varian Medical Systems Trilogy* and stereotactic frame screwed to the patient's head, similar to the picture shown (Figure 3), to immobilize. On January 13, 2014, takes place in *Novalis Treatment Center* located in *Punta Pacifica Hospital* (http://www.novalispanama.com/), *with the 1st Stereotactic Radiotherapy (SRT) in Panama* to a patient diagnosed with *Atypical Meningioma Cavernous Sinus Left*. The system was used Exac Trac Brain lab in conjunction with the True Beam STx system (Figure 4) from Varian Medical Systems, the first treaty with this technology in Latin America case. Multidisciplinary Team: *Dr. Antonio De Salles* (neurosurgeon consultant), *Dr. Waltter Kravcio* (neurosurgeon), *Dr. Yassir Ruíz* (radiation oncologist), *MSc. Benjamin Jaén* and *MSc. Eladio Abrego* (medical physicists), *TRIM-TRT Jasmina Alexander* and *TRIM-TRT Manuel Miller* (technical).

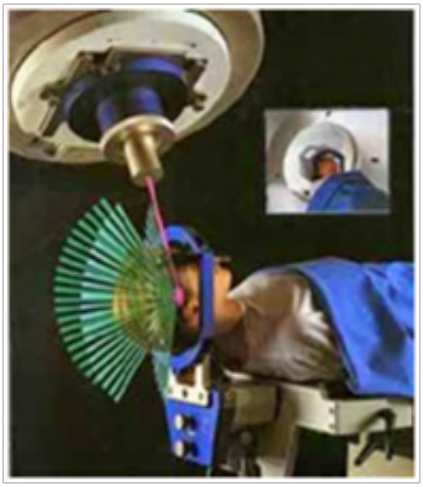

Figure 3 Linear accelerator adapted to *Varian Medical Systems Trilogy* and *stereotactic frame screwed to the patient's head.*

On February 25, 2014, takes place in *Novalis Treatment Center*, with the *1st Stereotactic Radio surgery (SRS) Frameless in Panama* with a single dose to a diagnosed patient with acoustic neuroma (schwannoma Vestibular). This treatment modality is performed to based masks immobilization for radio surgery and *Exac Trac Brain lab system* together with *True Beam STx system from Varian Medical Systems* (Figure 5), which uses MMLC HD (Collimators Multi-Sheet Micro HD, of 2.5mm thick), which allow form precisely the bundle and protect nerves and surrounding healthy tissues, many of which are 3mm, which prevents the cones can define precisely the beam without affecting them. With this system, which represents the limiting circular cone shape and its size is exceeded, since the smallest has a diameter of 4 mm. Multidisciplinary Team: *Dr. Antonio De Salles* (neurosurgeon consultant), *Dr. Waltter Kravcio* (neurosurgeon), *Dr. Yassir Ruíz* (radiation oncologist), *MSc. Benjamin Jaén* and *MSc. Eladio Abrego* (medical physicists), *TRIM-TRT Jasmina Alexander* and *TRIM-TRT Manuel Miller* (technical). On June 5, 2014 , are performed in the *Treatment Center Novalis* the first 3 cases of *Stereotactic Radio surgery (SRS)* treated with energy photons unfiltered (6xFFF) for *HIM (High Intensity Modulated)*, allowing dose rates up to 1400 UM/min with FFF 6x power until 2400 UM/min with energy 10xFFF.

Figure 4 True Beam STx system.

Figure 5 Exac Trac Brain lab system together with True Beam STx system.

It is noteworthy that the True Beam and True Beam STx teams are the only currently this feature and in Panama we have the only *True Beam STx throughout Latin America*, which is a more advanced version of true Beam with which Mexico has adapted precisely for Radio surgery Stereotactic Radiotherapy and high precision and accuracy. With this system the treatments are shortened by 50% compared to the times employing conventional technology, which is not only more comfort for the patient but a much more effective because the tumor has less time to move (due to movement body produced by respiration and other factors) at the time when you are receiving a radiation dose. The diagnoses of the 3 patients were treated two Arteriovenous Malformations (AVMs) and one with a pituitary adenoma, respectively. Multidisciplinary Team: *Dr. Antonio De Salles* (neurosurgeon consultant), *Dr. Waltter Kravcio* (neurosurgeon), *Dr. Yassir Ruíz* (radiation oncologist), *MSc. Benjamin Jaén* and *MSc. Eladio Abrego* (medical physicists), *TRIM-TRT Jasmina Alexander* and *TRIM-TRT Manuel Miller* (technical).

http://www.radiocirugiapanama.blogspot.com/2013/02/truebeam-stx.HTML

On October 27, 2014 held the first Stereotactic Body Radiation Therapy (SBRT) (Figure 6) in Panama with the team Novalis powered by True Beam STx & the Brain Lab Exac Trac system in *Novalis Treatment Center* located in the Punta Pacifica Hospital. A female patient of 60 years with 2 lesions treated T12 L1 column and each with 2 dynamic arches, 10 MV photons FFF and 20 Micro MLC HD 120 Gy in 5 sessions. Multidisciplinary Team: *Dr. Antonio De Salles* (neurosurgeon consultant), *Dr. Waltter Kravcio* (neurosurgeon), *Dr. Yassir Ruíz* (radiation oncologist), *MSc. Benjamin Jaén* and *MSc. Eladio Abrego* (medical physicists), *TRIM-TRT Jasmina Alexander* and *TRIM-TRT Manuel Miller* (technical).

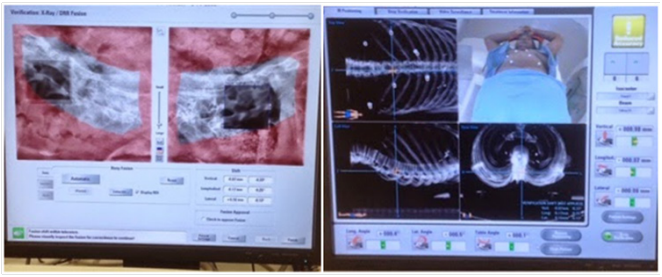

Figure 6 Stereotactic body radiation therapy.

On November 1, 2014, performed the first studies in Panama PET PET-CT with GE Discovery 610 Treatment Center Novalis (Figure 7). Multidisciplinary team: *Dr. Yariela Herrera* (nuclear medicine), TRIM Shelbys Pacheco (technical), *MSc. Eladio Abrego* (physical radiation protection manager) Every one of these developments and achievements in medicine in Panama, are a source of pride and inspiration for all and each of the professionals involved in the above procedures *(neurosurgeons, radiation oncologists, medical physicists and technicians in radiology and radiotherapy)* and that benefit of the Panamanian population, reducing the high expenses involved traveling to large specialized centers with the same technology to receive suitable treatment do.

Figure 7 Developments and achievements in medicine in Panama.

Acknowledgments

None.

Conflicts of interest

Author declares that there is no conflict of interest.