

BORDET DEPARTMENT RADIATION ONCOLOGY



The Radiation Oncology Department of the ULB situated in the Jules Bordet Institute has been providing patients with high quality, tailored radiation oncology care for the last 60 years in a multidisciplinary setting using all the equipment available: CT, linear accelerators, brachytherapy, radiosurgery, stereotaxic ablative radiotherapy. Our gammaknife unit, the only one in Belgium, is located in the Erasmus hospital. The department maintains an active research agenda in close collaboration with other units of the Institute which is organized as an integrated cancer centre. The Department also provides comprehensive training schemes for graduate and undergraduate students.

Research axes & Expertise

The main area of research is related to the development of new radiation approaches for patients. The main area of expertise is oncology and radiation physics. The unit has 4 linear accelerators providing classical irradiation from 2D, to 4D radiotherapy including intensity modulated radiotherapy (IMRT) and VMAT (= rotational IMRT). An accelerator is in an operating theatre to perform intraoperative radiotherapy. The gammaknife unit allows to do radiosurgery for malign as well as benign and functional lesions. Furthermore, different brachytherapy techniques are available. This requires to have all the facilities to do the dosimetry and calibration of the different equipment.

Application fields

- Intensity-modulated radiotherapy - VMAT
- Image-guided radiotherapy
- Radiosurgery – stereotaxic ablative RT
- Brachytherapy
- Intraoperative radiotherapy / partial breast irradiation
- Radiation physics
- 4 D + deep inspiration breath-hold RT

Combined modalities exist with chemotherapy, targeted biological therapies, immunotherapies and surgery.

Major projects/partnerships/collaborations

The latest techniques developed rely on breast sparing techniques such as intraoperative electron beam irradiation at the time of surgery, partial breast irradiation and deep inspiration breath-hold; treatment in prone position (on the belly) will soon be introduced in the department. High dose Stereotaxic Ablative Body Radiotherapy (SABR) with curative intent for oligometastatic disease is currently under investigation in the department.

Image-guided radiotherapy will further be perfected in close cooperation with the departments of radiology and nuclear medicine (e.g. PET-PSMA).

This research aims at individualising treatment not only according to the physical and anatomical aspects of a tumour but also in relation to its radiobiological characteristics (proliferation rate, intrinsic radiosensitivity), i.e. through PET-CT monitoring.

Collaboration with the Oscar Lambret Cancer Centre in Lille and the creation of a common lab on MRI guided radiotherapy are under construction.

Moving to New Bordet in 2020 will be a major challenge with installation of last generation high precision machines in an integrated department and the development of a radiotherapy lab with micro-irradiator.

Key figures

The Radiotherapy Department comprises 70 staff members who conduct over about 2400 treatments per year. 6 radiation units and 1 brachytherapy afterloader are available in this unit.

Contact

- Address: I.J.Bordet, 121 boulevard de Waterloo 1000 Brussels
 - Van Gestel, Dirk, dirk.vangestel@bordet.be
 - Phone: +32 2 541 38 30
 - Reynaert, Nick, nick.reynaert@bordet.be
 - Phone: +32 2 541 38 85