**Purpose/Objective:** To evaluate through Doppler ultrasound the intratumoral vascularization of uveal melanoma (UM) at diagnosis as a sign of tumoral activity, and to quantify its presence after treatment with brachytherapy.

**Materials and Methods:** 18 patients with UM were treated with brachytherapy from July 2005 to July 2012. 13 patients had UM with intratumoral vascularization at diagnosis (9 primary and 4 secondary). Systolic peak velocity (SPV) and resistance index (RI) were measured at diagnosis and during follow-up. Patients were divided into 2 groups: Group A: PTMM was completed in 18 months (range 23-64 months), Group B: 3 months (range 12-19 months).

**Results:** Group A had a lower mean RI (0.50 ± 0.05) than Group B (0.59 ± 0.05) at diagnosis. The SPV was lower in tumours before treatment (0.50 vs. 0.59, p=0.0047). Out of 18 tumours, 8 showed a significant increase in SPV at follow-up. The new vascularization cases can be explained by the persistence of old vessels, tumour recurrence or appearance of vascular congestion. The new vascularization cases can be explained by the persistence of old vessels, tumour recurrence or appearance of vascular congestion. The new vascularization cases can be explained by the persistence of old vessels, tumour recurrence or appearance of vascular congestion.

**Conclusions:** The non-invasive quantification of neovascular blood flow using pulsed Doppler for UM treated with brachytherapy offers a new diagnostic modality to evaluate the tumour activity. Most UM lose their Doppler signal in the first 6 months. Persistent intratumoral vascularization seems to relate to large tumours, recurrence or appearance of vascular congestion. The new vascularization cases can be explained by the persistence of old vessels, tumour recurrence or appearance of vascular congestion.
concluded that the mean TV was 16.03 cc and the percentage of TV covered by less than 100% of dose was 4.9%.

Results: From February to June 2012, we treated 4 patients. 3 patients had histological diagnosis of squamous cell anal canal carcinoma (SCACC), instead 1 patient was a low rectum adenocarcinoma. The median age was 61.5 (range 49-78). There were: 2 patients ct2T2N0M0, 1 patient ct4N0M0 and patient ct4N2M0. A patient didn’t ultimate the RT-CT combined treatment for toxicity. No episodes of complication for now. To evaluate the clinical results in the follow up indicates no episodes of common complications at the first month. Afterward the patient underwent again a CT scan and the definitive treatment plan was created on Oncectra Brachy console.

Conclusions: The dosimetric analysis showed that the mean TV was 16.03 cc and the percentage of TV covered by less than 100% of dose was 4.9%.

PO-0988
Comparison between linear accelerator and INTRABEAM® system for intraoperative radiotherapy of the breast.
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Purpose/Objective: The first treatments with INTRABEAM® system (Carl Zeiss SAS) using low energy X-rays were performed in our institution in October 2011. Between 2004 and 2011 an electron linear accelerator was used for intraoperative irradiation of the breast for 82 patients.

Materials and Methods: Fifty-nine patients of mean age 71 years [59-87] have now been treated with INTRABEAM®. For each, the radiation dose required was 20 Gy to the surface of the surgical margin in a single fraction. With the linear accelerator, 21 Gy were prescribed to the 90% depth dose of the chosen energy. The system INTRABEAM® produces low energy photons from a 50 kV and 40 kV source while preceding irradiation technique used electrons energy of 6 or 9 MeV. The isotropy of the low energy photon beam and the dose rate were measured before each treatment with a specific system and a calibrated ionization chamber. During irradiation with electrons, we realized an ‘in vivo’ measurement with a semiconductor placed at the tumor bed by the surgeon and the radiotherapist during the positioning of the applicator. With the new technique, sterile applicators with variable diameters from 3 to 5 cm are selected to exactly fit the surgical cavity, thus allowing a homogeneous spherical irradiation. In our previous technique, the tumor bed flattened was systematically located 2 cm from the edge of the applicator (4 to 6 cm in diameter) to get a sufficient safety margin for processing.

Results: With INTRABEAM® the dose attenuation is rapid (5.4 Gy at 1 cm from the applicator surface), thereby reducing damage to surrounding healthy tissue. For treatment, mobile system is installed in one of two operating room’s with ambulatory doses designed in accordance with radiation protection standards and does not require as before the immobilization of a radiotherapy bunker. The average time needed to deliver the dose was 27 minutes [20-53] for 59 patients using the low energy photon technique. This time has a good on-line utility for the applicator and is longer than the 11 minutes used before to deliver the prescribed dose with electrons. However, the total time needed for the room and the staff is not more important with INTRABEAM® system as before.

Conclusions: The shift from breast intraoperative radiotherapy using a linear accelerator to INTRABEAM® was realized with no major problems in our institution. Using this new system has improved the workflow of radiotherapy and surgery, and thus increases the number of patients that can benefit from this technique.

PO-0989
Management of breast cancer: the multidisciplinary approaches in IORT procedure at Città di Castello Hospital
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Purpose/Objective: In the last ten years, intraoperative radiotherapy has been used extensively in the clinical setting as the exclusive mode of partial breast irradiation or as tumor bed boost during BCS. A careful diagnostic evaluation is essential for the choice of the most appropriate treatment. Most international guidelines recommend a multidisciplinary approach for patients with breast cancer. The multidisciplinary team provide to establish quality standards in the multiple aspects of the treatment and may be particularly important for a procedure as IORT in which different professionals must work together for the successful implementation of the treatment.

Materials and Methods: In our center, since February 2005 we treated about 500 cases of breast cancer with IORT and since January 2011, all patients were evaluated by the multidisciplinary team made up of surgeon, radiologist, radiation oncologist, medical oncologist, pathologist, radiographers and nurses. The selection of patients to be able to be submitted to IORT exclusively takes place, in agreement with the surgeon, on the basis of the ASTRO guidelines, all other patients are treated with EBRT and intraoperative boost. One of the main limitations in the use of IORT is the absence of pathology information; in our center all patients received core-biopsy with the evaluation of predictive parameters (histology, grading, HER2, ER, PgR, Ki67) before an exclusive treatment. The close and constant collaboration with the surgeon and the pathologist has been essential in the improvement of the entire procedure.

PO-0990
Software for calculating the dose distribution in the low-energy X depending on the angle of incidence
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Purpose/Objective: The use of low energy X-ray radiotherapy is not always done in ideal conditions with the beam perpendicular to the surface. It is therefore important to know what will be the impact of the angle made by the applicator on the dose distribution. For this we have developed a software based on a Monte Carlo code.

Materials and Methods: We use a papillon50 emitting 50 kV X-rays with applicators of different diameters (22, 25 and 30 mm). The apparatus and applicators were modeled with the Monte Carlo code PENEOLE. The validation of this model was made by comparing calculations and measurements by ionization chamber and films gafchromics EBT2. It