Recently, prostate-specific membrane antigen radioguided surgery (PSMA-RGS) was introduced for targeted resection of localised prostate cancer recurrence. Preliminary results show that PSMA-RGS is very sensitive and specific in tracking suspicious lesions intraoperatively. Prerequisite for PSMA-RGS is a positive Ga-PSMA positron emission tomography (PET) scan with a preferably singular soft tissue or lymph node recurrence. The first 63 patients treated with PSMA-RGS were analyzed. The extracorporal analysis of a total of 277 tissue specimens yielded the following test quality criteria regarding the presence of malignant tissue: sensitivity 86.2%, specificity 96.4%, positive predictive value 94%, negative predictive value 91.5%. Oncological follow-up data was available from 59 patients. There was a drop in PSA (prostate specific antigen) below 0.2 ng/ml in 38 patients (67%). Of these 38 patients, 17 (45%) are free of biochemical recurrence after a median follow-up of 12.3 months (6.7-31.9 months). Clavien-Dindo grade III complications occurred in 6 of 63 patients (9.5%). In summary, PSMA-RGS proved to be of high value in patients with localised prostate cancer recurrence for exact localisation and resection of oftentimes small metastatic tissue using intraoperative and ex vivo gamma-probe measurements. Furthermore, PSMA-RGS has the potential to positively influence oncological outcomes. However,
patient identification on the basis of Ga-PSMA PET imaging and clinical parameters is crucial to obtain satisfactory results.