Radical prostatectomy for localized and locally advanced prostate cancer

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In the Western world, prostate cancer is the most common non–skin malignancy in males. The application of PSA as a tool for early detection has led to a stage shift with localized and thus potentially curable stages representing the majority of newly detected cases. The choice of optimal treatment is subject to controversies. Up to now, however, only radical prostatectomy has been demonstrated to improve survival in clinically diagnosed prostate cancer in the setting of a randomized trial, compared with watchful waiting. Open retropubic radical prostatectomy is the standard treatment of localized prostate cancer in men with an adequate life expectancy. It enables overall disease–specific 10–year survival rates of more than 90 %, when considering histopathologically organ–confined cases, disease–specific 10–year survival rates reach narrowly 100 %. New surgical approaches like conventional laparoscopic and robotic radical prostatectomy have not been investigated in a prospective randomized trial in comparison with open surgery yet. In experienced hands, the results of the different surgical approaches seem to be comparable. Some recent non–randomized comparative studies, however, suggested that conventional laparoscopic radical prostatectomy has an increased risk of postoperative urinary incontinence. Furthermore, there is a steep learning curve in conventional laparoscopy which is associated with an increased risk of positive margins, rectal injuries, rectal fistulas and impaired functional outcome as illustrated by recent population–based studies. Robot–assisted radical prostatectomy is an advancement of laparoscopic surgery. High–volume centers report very low complication rates and excellent results concerning the recovery of potency and urinary continence as well as high tumor control rates in properly selected patients using robot assistance. Currently, unfortunately, robot–assisted surgery is still associated with high costs that are only partially outweighed by a shorter hospital stay.

The treatment of clinically locally advanced prostate cancer (cT3–4) is subject to controversies. Patients with lymph node metastases as well as patients with overstaged localized and thus curable disease fall into this category. Nomograms may improve the prediction of the actual tumor stage, they are, however, not reliable concerning individual predictions. Radical prostatectomy, external beam radiotherapy and early or deferred hormonal therapy are possible treatment options for clinically locally advanced prostate cancer. Multimodal treatment (a combination of these options) is frequently used, but there is only few evidence available defining patients who could benefit from such aggressive treatment. After radical prostatectomy, the Gleason score–adjusted disease–specific survival does not differ meaningfully between the tumor stages pT2 (localized) and pT3–4 (locally advanced). In the case of lymph node metastases after radical prostatectomy, but not in node–negative disease, adjuvant hormonal treatment seems to improve survival. Radical prostatectomy for locally advanced disease has the advantages of the remaining option of adjuvant radiotherapy. Furthermore, in patients with localized tumors in the prostatectomy specimen (about 25 % of clinically locally advanced cases), adjuvant hormonal therapy (that would be given after external beam radiotherapy) is spared. Adjuvant radiotherapy may improve biochemical and local control in locally advanced prostate cancer. A survival benefit has, however, only been shown in one study yet. External beam radiotherapy alone provides unfavourable survival rates in locally advanced prostate cancer. Adjuvant hormonal treatment for three years improves outcome in this setting. When no curative treatment is chosen, early hormonal treatment seems to provide modest benefit compared with deferred therapy. In the future, patients with locally advanced prostate cancer should be enrolled in controlled clinical trials to find out which treatment is best.