Planned radical surgery is the standard therapy in localized soft tissue sarcomas (STS). Locally advanced tumors require multidisciplinary team assessment and appropriate treatment decisions. In high grade, borderline resectable STS (with encasement of vessels, proximity to motor nerves, invasion of joints and bones, when very close margins are anticipated) the preoperative chemotherapy and radiotherapy or isolated limb perfusion with melphalan/TNF alpha may be applied allowing for limb preservation/function-sparing and radical resection. The potential benefit of neoadjuvant therapy is the determination of tumor sensitivity to therapy gained from examination of the postresection surgical specimen.

Pathological studies indicate that neoadjuvant treatment stabilizes the tumor periphery in STS (e.g. the pseudocapsule integrity). Radiation therapy in the perioperative treatment of STS can be used both pre- and postoperatively, the effectiveness of both methods in local control of the disease, is comparable. Neoadjuvant radiotherapy increases the percentage of early treatment complications, but these wound complications (occurring in 30–40% in majority of cases) are reversible and have no significant long-term effects on function. Contrary to neoadjuvant radiotherapy, the patients irradiated postoperatively experience more serious late effects of the therapy, because of the larger treatment field and total doses used. The conventional total dose and fractionation of preoperative radiotherapy in STS is 50Gy in 25 fractions of 2Gy, some studies indicate the possible role of hypofractionation. Some entities as dermatofibrosarcoma protuberans or gastrointestinal stromal tumors (GIST) can be treated by targeted therapies preoperatively leading to resectability of tumors and to diminishing possible morbidity or functional deficits. Present indications for preoperative imatinib treatment in GISTs include locally advanced tumor, not amenable to surgery without mutilating operation (e.g. abdomino-perineal resection); when negative resection margins around the organ of origin are difficult to obtain; and when function-sparing resection and limitation of the extent of surgery can be possible after tumor shrinkage (e.g. local excision instead of pancreatoduodenectomy).

Disclosure: P. Rutkowski: I have received lecture honoraria from Novartis, Roche, BMS, GSK, MSD, Pfizer and served as a member of Advisory Board for MSD, Novartis and Bayer.