



Original Research

Multivisceral resection of retroperitoneal sarcomas in the elderly



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Abstract Background: Retroperitoneal sarcomas occur in an anatomically complex location often involving several adjacent organs. Surgery with multivisceral resection constitutes the mainstay of curative therapy. This study sought to characterise the morbidity and oncological outcomes of surgery for retroperitoneal sarcoma in an elderly population.

Methods: Patients with primary, localised retroperitoneal sarcoma referred between 1st January 2008 and 31st December 2014 were identified from multidisciplinary meeting records. The proportion of patients proceeding to surgery and oncological outcomes were compared between two groups—those aged >65 years and <65 years.

Results: A total of 385 patients were identified. The most common histological subtypes were de-differentiated liposarcoma (40.3%), well-differentiated liposarcoma (19.5%) and leiomyosarcoma (18.2%). A greater proportion of patients aged >65 years did not undergo surgery (41.8% versus 12.0%). The rates of irresectable tumours were similar between cohorts (17.5% versus 11.0%). However, non-operative management due to comorbidities (13.4% versus 0.5%) or patient choice (8.2% versus 0.5%) was more common in patients aged >65 years. 281 patients (73.0%) proceeded to surgery. Patients aged >65 years had a higher rate of peri-operative morbidity (28.3% versus 9.5%), although no difference in peri-operative mortality or oncological outcomes was noted between age groups. The survival of patients managed non-operatively was significantly shorter than those undergoing surgery (median survival 15 versus 91 months, $p < 0.001$).

Conclusion: Extended resections for primary retroperitoneal sarcoma in the elderly achieve comparable oncological outcomes but with increased rates of morbidity when compared with younger patients. The outcomes of patients unsuitable for surgery are poor regardless of age. © 2016 Elsevier Ltd. All rights reserved.

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1. Introduction

Retroperitoneal sarcomas are distinct from other soft tissue sarcomas, in that local recurrence, rather than distant metastasis, is the most common cause of disease specific death, accounting for 75% of deaths [1]. Several prognostic factors of local recurrence have been identified including histological subtype, tumour grade and the completeness of macroscopic excision [2–7]. Extended surgical resections, encompassing adjacent uninvolved organs, have been adopted by several sarcoma centres with the aim of minimising marginality and improving local control and patient outcomes [7–9]. Compared to limited resections, extended resections have been shown to produce improved oncological outcomes and acceptable peri-operative morbidity with approximately 60% of patients surviving 5 years [7–10].

Elderly people form an increasingly large proportion of our population and account for a significant number of patients presenting with retroperitoneal sarcomas. Patients over the age of 65 years account for 60% of all newly diagnosed cancers, with 60% of retroperitoneal sarcomas occurring in patients aged over 60 years [11,12]. Operative intervention is still potentially beneficial in the elderly, as life expectancy is over 10 years in 75 year olds of either sex and does not fall below 5 years until beyond the age of 85 years [13]. However, extended resections for retroperitoneal sarcoma are a substantial undertaking. The proportion of elderly patients that are fit for extended resections at presentation and the outcomes of surgery in this age group is unknown.

This study sought to determine what proportion of elderly patients presenting with primary retroperitoneal sarcoma proceed to multivisceral resection and to describe the outcomes of patients unsuitable for surgical management. Furthermore, it sought to determine whether peri-operative and oncological outcomes following multivisceral resection in elderly patients differ from younger adults.

2. Methods

The Royal Marsden Hospital is a tertiary referral centre for soft tissue sarcoma. All patients referred with a primary retroperitoneal sarcoma to this centre between January 2008 and December 2014 were identified from multidisciplinary team meeting records. According to the WHO definition in developed countries, an elderly person is defined as aged over 65 years [14]. Therefore, patients were split into two groups—those aged 65 years and over and those aged less than 65 years. Patients with benign retroperitoneal tumours, recurrent retroperitoneal sarcomas, gastrointestinal stromal tumour, paraganglionoma, fibromatosis, gynaecological sarcoma or metastatic lesions were excluded from the analysis. Approval was obtained from an institutional review committee.

Pathological variables included maximum tumour diameter, histological subtype and tumour grade. Grade was determined using the French Federation of Cancer Centres Sarcoma Group Grading System [15]. Frailty was determined using the Charlson comorbidity index (CCI) [16]. Macroscopically complete resection was judged by the operating surgeon and classified histopathologically as R0 (no microscopic disease) if there were negative margins greater than 1 mm circumferentially or as R1 if tumour extended to or within 1 mm of the resection margin. Macroscopically incomplete resection was classified as gross residual disease (R2). Peri-operative morbidity and mortality rates are reported at 30 days using the Clavien-Dindo scale (grades II–IV) [17]. Local recurrence was defined as recurrent intra-abdominal disease, with liver disease regarded as a distant metastatic event.

2.1. Operative strategy

All patients were discussed at a sarcoma multidisciplinary meeting/tumour board. Surgical resections were performed by one of three consultant surgeons. The aim of surgical resection was to encompass all macroscopic disease within a single en bloc specimen including the tumour and contiguous adjacent organs, which may be adherent to but not necessarily invaded by tumour when possible. Planned marginal excisions were performed along critical or vital structures (inferior vena cava, aorta, femoral nerve, duodenum, pancreatic head). In the case of vascular involvement, the vessel was included in the resection if it could be reconstructed or sacrificed safely. If not the disease was deemed irresectable.

Patients were followed up clinically and with appropriate imaging every 4 months for the first year, every 6 months for the next 4 years and annually thereafter.

2.2. Statistical analysis

Overall survival was defined as the time from surgery to death in the operative group and as the time from multidisciplinary meeting/tumour board discussion to death in the non-operative group. Local recurrence-free survival, distant metastasis-free survival and overall survival rates were calculated and plotted using the Kaplan–Meier method. Where patients developed local recurrence and distant metastasis, both events were recorded as outcome measures. The following potential prognostic factors of peri-operative morbidity were analysed using multivariate regression: age, gender, CCI, histological subtype, tumour grade, tumour size, number of organs resected and operative time. The following potential prognostic factors of oncological outcomes were analysed using Cox multivariate regression: age, gender, histological subtype, tumour grade and tumour size. Results are presented as hazard ratios (HR) with 95% confidence intervals (CI). SPSS

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