

patient rehabilitation. Most importantly, the diagnosis and management of pelvic tumour require a multidisciplinary approach, which includes radiologist, oncologist, physiotherapist, Occupation therapist, and Orthotist. Hence, patients must be treated in specialised centres where such resources are available.

As shown in our series, the morbidity is great with a high risk of wound infection and nerve injury. The overall complication rate has been reported as high as 50–60% [2]. In the current series, 22 out of 49 patients (45%) had complications. Regardless of the type of resection, there is a significant functional, social and psychological impact on the patient. Moreover, there is a significant risk of peri-operative mortality.

Because of these issues, there remains the question as to whether pelvic surgery performed with curative intent or for palliation is justified particularly for patients with high grade malignancy where the prognosis is poor. However, the results of the current series show that this type operation may be worthwhile.

In regards to oncologic outcome, forty out of the forty-nine patients survived longer than six months. The mean survival was greater than one year. The local failure rate was 16%, and 40% of patients developed metastasis. These figures are supported by Pring et al [3] who reported a similar local failure rate of 19% and an overall survival rate of 69%. Ozaki et al [4] reported a higher local recurrence rate of 60% and a poorer 5-year survival rate of 27%. However, in that study only patients with osteosarcoma were studied and 70% of patients had inadequate surgical margin. Disease control by pelvic resection is comparable to that of surgery for limb tumors. Bacci et al [5] reported, in his series of 526 patients with osteosarcoma of the extremities, a local recurrence rate of 6% and an overall survival rate of 70%. Sluga M et al [6] in his series of 130 patients also found a comparable LR rate of 2.3% and OS of 71% for limb-sparing surgery. The comparable oncologic result of pelvic resection to surgery for limb tumours is surprising because the response of pelvic tumors to adjuvant therapy is generally poor and the adequacy of surgical margin difficult to achieve.

The functional outcome varied with the level of resection but more than 50% of patients had satisfactory or better overall functional results in the current series. This is supported by Wirbel et al [7] who also found more than 60% of patients had good or excellent functional results in his series of 93 patients.

In the current study, we observed, not surprisingly, a significantly worse functional score in patients who had hindquarter amputation compared to those who had

limb sparing surgery. Emotional acceptance was likewise poor in the hemipelvectomy group. Other series [7,8] have observed similar results. We found that the reasons for the poor emotional acceptance are largely due to loss of mobility and the common complication of phantom limb pain.

In addition, patients who underwent external hemipelvectomy in the current series had the highest rate of wound infection at 56%. They also had the worst survival rate with only 11% of patients alive at the time of follow-up. These figures are supported by Masterson et al [9] who reported a 79% incidence of wound infection and 8 deaths within a year among 22 patients. These results further support the view that careful patient selection is required for hindquarter amputation. In recent years, hemipelvectomy is only performed for patients in whom extensive bone or soft tissue resection makes reconstruction difficult or leaves the leg with poor function. Involvement of the sciatic nerve necessitating resection of the nerve has not been considered a contraindication to limb-sparing surgery [10].

With Limb-Sparing Surgery, Type 3 and Type 4 resections had the best results when the function is examined separately from the emotional acceptance component. On the other hand, resections that involve the hip joint confer the worst results. The reason could be the many problems associated the methods of reconstruction.

Ischiofemoral arthrodesis and pseudoarthrosis are associated with shortening of the leg and lack of mobility [11]. The restricted range of flexion and extension permitted at the pubic symphysis may also result in aching symptoms. They also have long consolidation times, which means patients require longer periods of rehabilitation and use of gait support. Enneking [10] and Menendez [12] found that the maximum possible activity was achieved after an average rehabilitation period of 14.2 months.

Saddle prosthesis is suited for bridging large area of defect in cases where part of the iliac crest could be preserved. This form of endoprosthetic replacement provides good cosmetic result [11]. However, the eccentric position of the new hip center reduces the range of movement. Moreover, if major parts of the ilium were resected, loosening of the prosthesis with lateral shift of the prosthesis could be a long-term problem [7]. In this regard, Dacron ties have been advocated for use to secure the saddle while a pseudo-capsule develops [13]. In the current series, 3 out of 9 patients had dislocation of the prosthesis.

There are other alternatives, which include reconstruction with allografts with or without hip arthroplasty. This was performed for 3 patients in the current series. Their overall