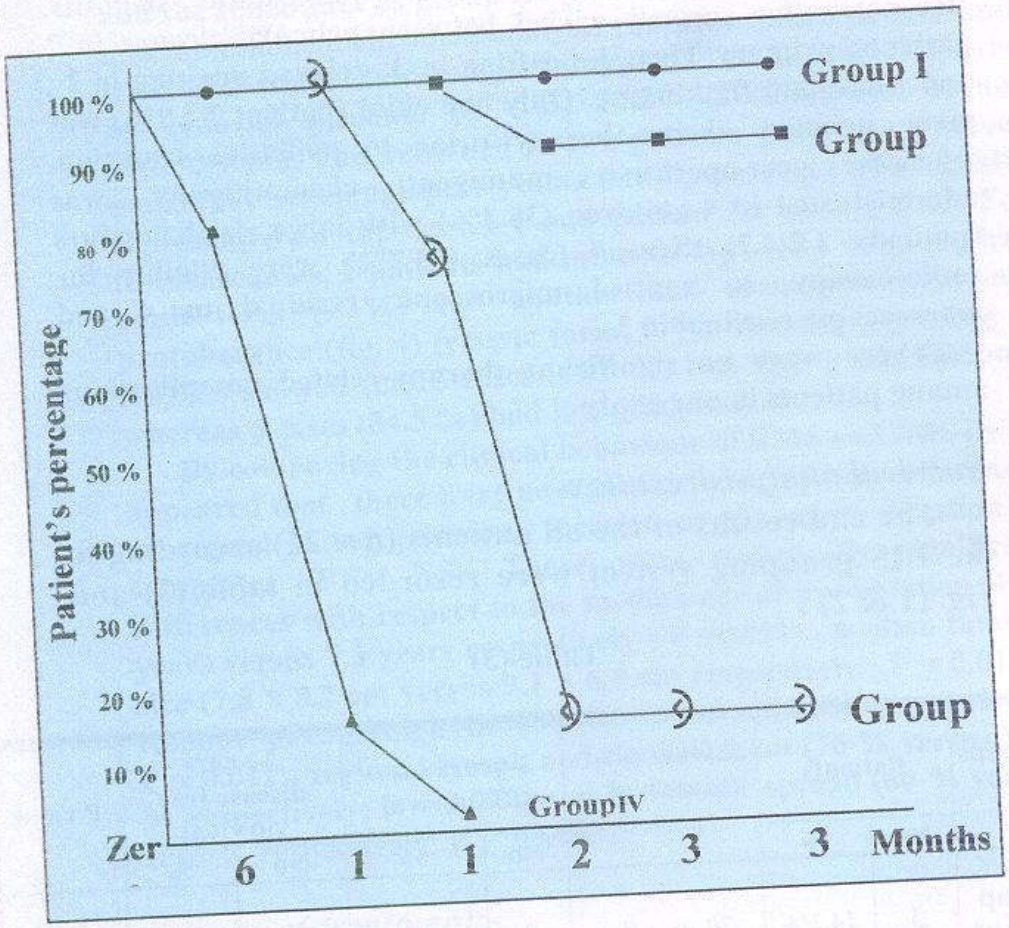


Fig. (1) Shows the 3-years over all survival rates according to the IRS system. Group I& II have a better survival outcomes in comparison with group III & IV (P= 0.0005).

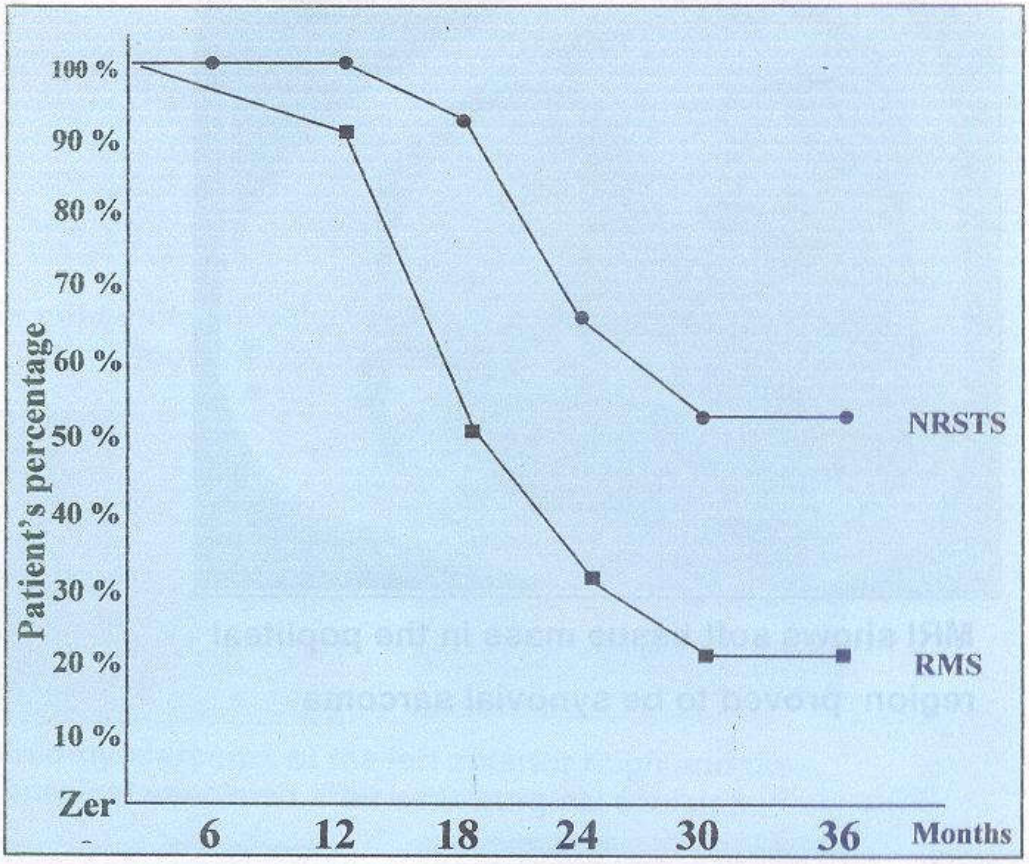
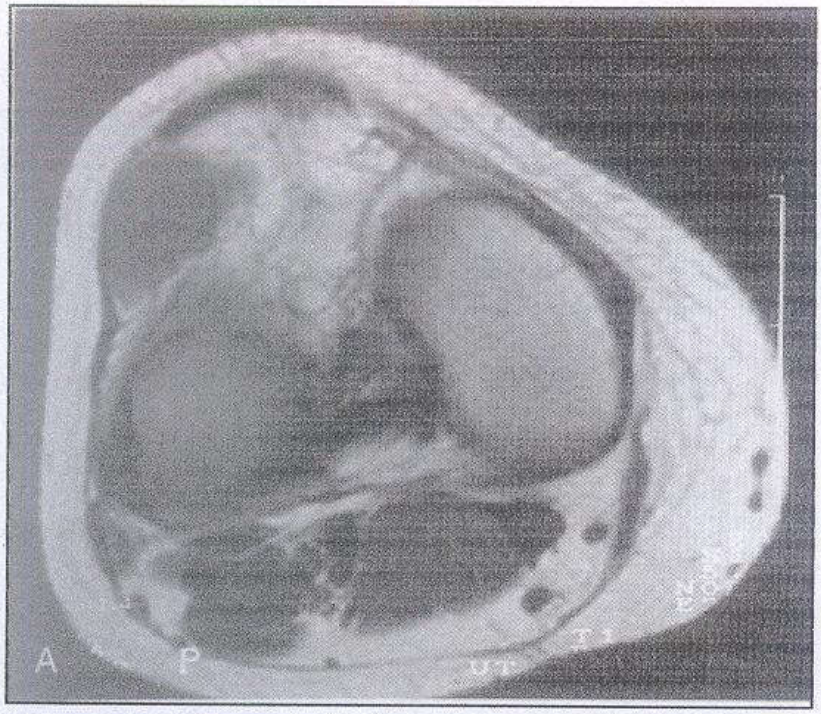
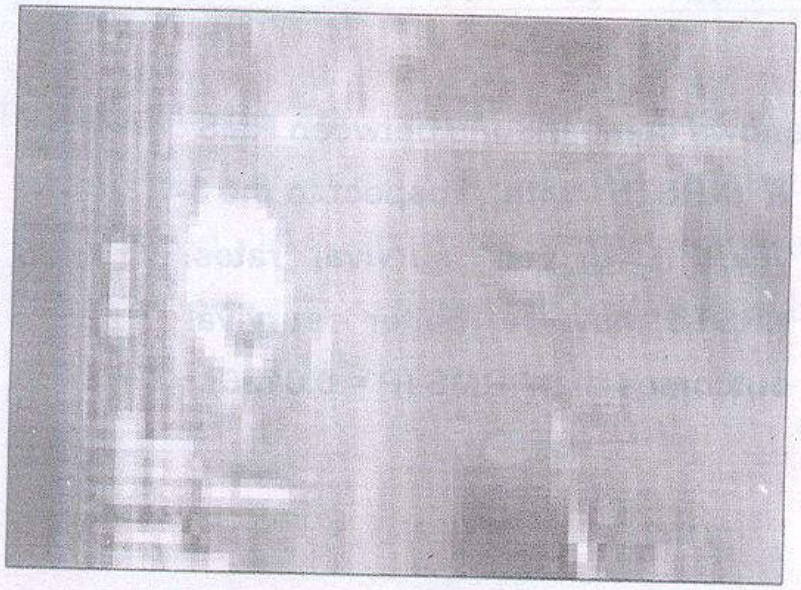


Fig. (2) shows comparisons between RMS & NRSTS with respect to the 3-years over all survival rates. NRSTS have a better survival outcomes than RMS (P = 0.0136).

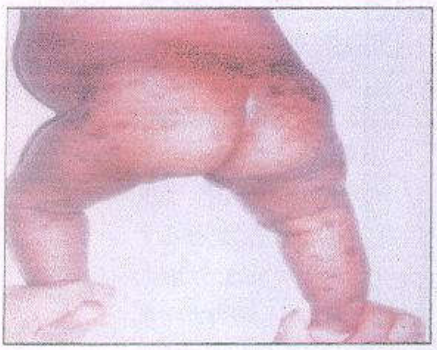


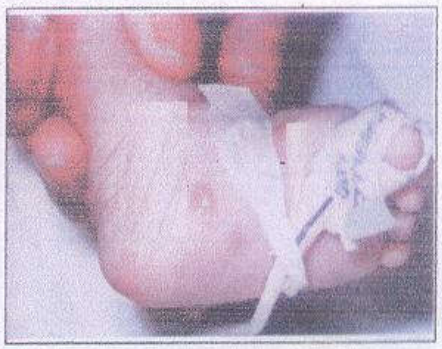
MRI shows soft tissue mass in the popliteal region proved to be synovial sarcoma



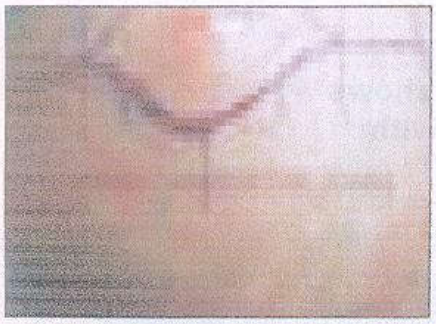
MRI shows soft tissue mass in the left shoulder region proved to be malignant fibrous histiocytoma

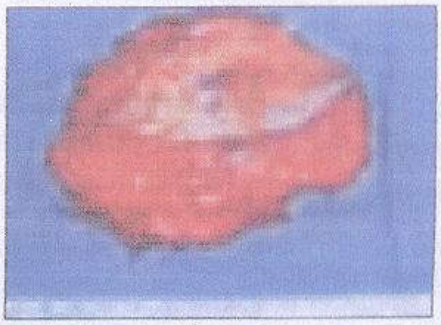
Soft tissue sarcoma of the extremities



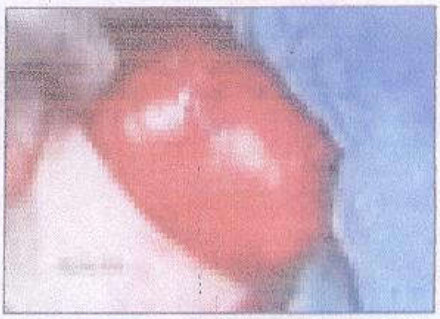


Shows congenital alveolar rhabdomyosarcoma of the left foot with multiple skin nodules .

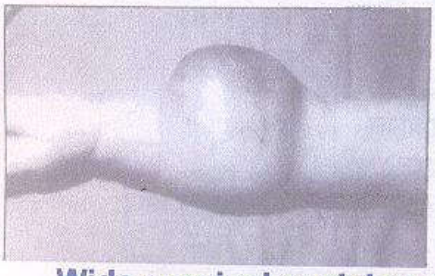


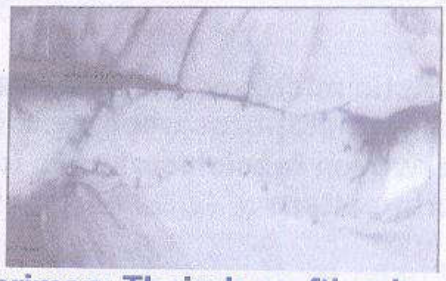


Rhabdomyosarcoma of the left anterior thigh and the surgical specimen after wide surgical excision.



Fibrosarcoma of the left buttock and its local excision





Wide surgical excision and primary Theirsh grafting in an infant with fibrosarcoma of the left anterior forearm.

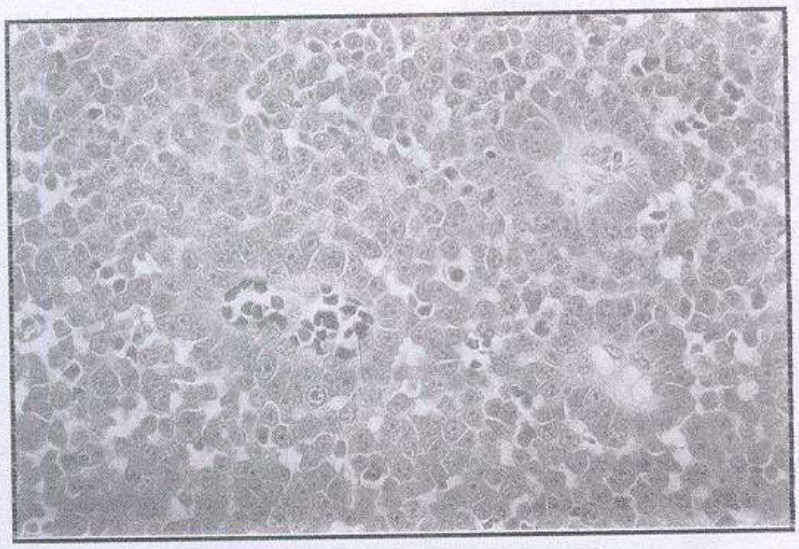


Fig. (3) Hematoxylin and eosin stained section shows rhabdomyosarcoma (alveolar variant) with a high nuclear to cytoplasmic ratio .

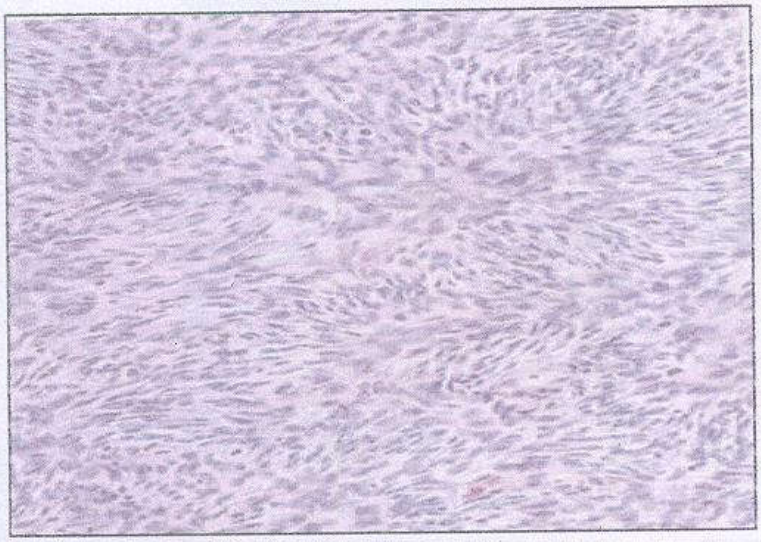


Fig. (4) characteristic microscopic appearance of classical dermatofibrosarcoma protuberans with interwoven fascicles of cells forming a storiform pattern .

With a median follow – up of 29.5 months, the over all survival rate, for all patients at 3-years , was 38.1 % , whereas the 3-years disease-free survival was 28.5%. A significantly better survival out-comes were recorded among patients of groups I & II in comparison to groups III & IV counter-parts. In group I & II the 3-years over all survival rates were 100 % & 80 % respectively whereas they were 14.2% & zero % respectively in groups III & IV (P =0.0005). Moreover , wide local excision recorded 100 % & 60 % 3-years disease free survival in groups I & II respectively (P= 0.0001). As regard to the overall survival period , patients with metastatic disease (group IV) had a lowest mean over all survival (8.3 months) in comparison to patients with group I disease (70 months), group II disease (42.2 months) and group III disease (21.1 months) (P = 0.003) .

For patients with RMS , all the 6 patients who presented with stage IV disease died within a median period of 8.3 months (range 2-12 months) after presentation. Of the 3 patients who had group III disease , 2 developed distant metastasis (patients 4,9) (20%) and died within a median period of 14.5 months and one (10%) developed local recurrence (patient, 7), 21 months after the primary surgery. Re-excision was performed to this case and the patient was still survive but with distant relapses. One case only in this series who was staged as group II (10%) (patient 10) showed no evidence of disease for 37 months .

For NRSTS , 5 cases (45.5%) died of their disease within a period of 20 months (range 16-25 months). Of those patients , 4 had group III disease (36.3%) and one had group II disease (9%). Local recurrence was recorded in another case of group II (9%) (patient 8). This patient was underwent surgical re-excision and showed no evidence of disease during the period of follow – up. The remainder 2 cases of group II (18.1 %) and all cases of group I (n = 3 ; 27.2%) showed no evidence of disease for median period of 60.2 months .

By comparing the NRSTS 2 main types of sarcomas (NRSTS versus RMS), it appeared that patients with NRSTS had a significantly better survival outcome than those patients with RMS probably because of high tendency of the later to metastasize. The 3-years over all survival rates were 54.5 % & 20 % for NRSTS and RMS respectively (P =0.0136) (fig 2).

Among patients with NRSTS, patients who died differed from survivors only with respect to the clinical behaviour of the primary tumour. Infantile fibrosarcomas, malignant fibrous histiocytoma and malignant heamangio-pericytoma were clinically, less aggressive, non metastasizing and treated successfully with surgery alone or surgery & radiation than other types .

By concerning tumour location irrespective to the histology , it was clear from this study that survival outcome was significantly better in extremity tumours rather than other sites. The 3-years overall survival rates were 50 % (6/12) & 22.2% (2/9) for extremity and the other location respectively (P = 0.005). The trunk and retroperitoneum had the worest prognosis among all sites of presentation. (1/7 ; 14.2%) .

DISCUSSION

Soft tissue sarcomas are the fifth common solid tumours in children and account for 7 % of all child-hood malignancies (pappo & Pratt , 1977). They have great differences in histologic type, distribution and response to therapy , (Miser *et al*, 1997). So the present study was planned out to give an idea about the different behaviours and outcomes of childhood STS and to standarize a suggestion about the prior lines of treatment. For this purpose 21 children had been treated and followed – up for a period of 9 years. According to the clinical behaviour they were classified as RMS and NRSTS whereas they were staged as group I, II, III & IV according to the post-surgical IRS grouping system .

Most studies support the concept that RMS is a highly malignant and locally aggressive neoplasms that tends to disseminate rapidly early in the course of the disease (Hayes *et al.*; 1983 & Walterhouse *et al.*; 2001) .It comprises approximately 55% of all soft tissue sarcoma in children between 10-15 years (Grundly *et al.*, 2001). Data reported from the National Cancer Institute, Cairo , Egypt by Hussein *et al*, (1994) showed that 58% of the children with non-metastatic RMS were staged as group III whereas children staged as group I & II didn't exceed 7 % and 35 % respectively. Gross *et al* (1997) found that 63.6% of children , with RMS of the hand , had metastatic disease as the onset and died 4 to 23 months from diagnosis. These results agreed with that reported in our

study. Patients with RMS represented 47.6% (n = 10) of our patient poputation. Six out of the 10 patients (60 %) had metastatic disease at the onset whereas 3 patients (30 %) were staged as group III and only one patient was staged as group II (10 %), reflecting the late stage of presentation of our patient population .

On contrany to these observations on RMS , many investigators agreed that pediatric NRSTS have differrent clinical behaviours . (Dillon *et al* 1995 ; Enzinger *et al* 1995 ; and Marcus *et al*, 1997). Infantile fibrosarcoma and malignant heamangio-pericytoma in young children, dermatofibrosarcoma protuberance and angiomatoid variant of malignant fibrous histioycytoma are typically less aggressive , rarely metastasize and can often be treated successfully with surgery alone (Ceccetto *et al*, 2001, Ferrari *et al*, 2001 and Miser *et al*, 2002). Synovial sarcoma , liposarcoma and fibrosarcona (adult form) usually occur in older children and they have high metastatic potential (Grouch *et al*, 2003). In our study , among patients with NRSTS (n = 11 ; 52.4 %) patients who died differed from survival only with respect to the clinical behaviour of the primary tumour. Infantile fibrosarcoma, malignant heamangio-pericytoma , and malignant fibrous histiocytoma had less agreesive , non metastasizing clinical behaviour than other types .

By comparing RMS versus NRSTS, it was clear enough that there were no statistically significant differences as regard to sex predisposition , tumour location or the mean duration of symptoms. A statistically high significant differences between RMS and NRSTS were recorded with respect to the median age at presentation (10.3 years versus 7.3 years respectively ; P=0.011) , median tumour size (7.8 × 5.2 cm versus 9.1 × 6.4 cm respectively ; P =0.013) , tumour grade (high in 100% versus 45.5 % respeclively ; P =0.021), regional lymph node metastasis (70% versus 18.1 % respectively ; P =0.009), and lastly distant metastasis (60% versus zero % respectively ; P =0.0003) .

For eradication of RMS , many investigators agreed that beside surgery and radiotherapy , all patients should receive chemotherapy with the quantity and duration dependent on risk factors. They concluded that without chemotherapy the majority of children would die of metastasis which are present at diagnosis , even through they are too small to appear on scans (Hayes *et al*, 1983; Hussein *et al*, 1994 , and Walterhouse *et al*,

2001). In our study , the use of various kinds of surgery up to amputation together with chemotherapy (preoperative & postoperative) & irradiation didn't show any survival benefits in group III & IV of this series. Only a single case of group II showed no evidance of disease for 3-years. It was clear enough that the prognosis in patients with RMS was stage dependent.

For non-metastatic NRSTS , Miser *et al* (2002) recommended that wide local excision alone is considered curative in patients with microscopically negative margins (group I) and must be combined with radiotherapy in patients with microscopically positive margins (group II). Dillon *et al* (1997) found that the efficacy of compartmental resection of NRSTS over wide local excision , in achieving local tumour control has not been demonstrated. More recently, Badrawy *et al* (2003) found that wide local excision is successful in 10 out of 13 patients with infantile fibrosarcoma (77 % success rate). Grouch and his associates (2003), reported a survival rate of 82 % , 67 % , 12 % and 5 % for group I , II , III and IV respectively and concluded that the degree of resectability at diagnosis is the most important prognostic factors in patients with NRSTS. In our study , wide local excision alone was successful in group I with no evidence of recurrence for 3-years (100 % success rate) whereas in group II, wide local excision combined with radiation reported an overall and disease free survival rates of 80 % & 60 % respectively. The use of multimodality therapy (surgery , irradration , and chemotherapy) didn't improve survival results in patients with group III NRSTS .

Analysis of the effect of some prognostic factors on overall survival rate was done in an attempt to define the high risk group of patients with PSTS. For NRSTS , most studies on prognostic factors agreed that, age is an independent prognostic factors. Infants and young children (< 4 years of age) tend to have a better prognosis than in older childer and adolescents with similar diagnoses (Grouch *et al* , 2003). Kothari *et al* (1999) and Trobes *et al* (1999) stated that the age of presentation is a very critical factor regarding the prognosis of infantile fibrosarcoma. On contrary to these observations , congenital alveolar rhabdomyosarcoma is a highly malignant tumour with no record of long term survivors (Crundly *et al*, 2001). In our study , the 3-years overall survival rate was 60% (3/5) in patients < 4 years of age versus 31.25 % (5/16) in patients > 4 years of age (P =0.01). Almost all studies on prognostic factors

on PSTS agreed that extremity tumours carry the best prognosis among all sites of presentation , whereas trunk and retroperitoneal tumours carry the poorest prognosis (Rao , 1993 ; Hussein *et al*, 1994 , and Grouch *et al*, 2003). In our study , extremity tumours had a better survival outcomes than other sites (50 % versus 22.2% respectively). Retroperitoneal and trunk tumours had the worest prognosis among all sites of presentation (14.2%) .

CONCLUSION

RMS is a highly aggressive neoplasm that tends to metastasize early in the course compared with NRSTS . NRSTS have different clinical behaviour depending on the age of presentation. Infantile fibrosarcoma and malignant heamangiopericytoma in young children are typically less agressive , rarely metastasize neoplasms. Treatment as defined by the IRS protocols is acceptable. Wide local excision with pathologically proven safety margins is the treatment of choice. Preoperative chemotherapy is of benefit in cases with extended tumours to achieve tumour regression. Postoperative chemotherapy and radiotherapy are the primary mode of treatment in incompletely resceted , irresectable and metastasizing tumours. The prognosis in infants and children with NRSTS is much favorable than in older children with similar diagnoses.

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الإيجاز العربى

سرطان الأنسجة الرخوة فى الأطفال السلوك الإكلينيكى، العلاج والنتائج

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يعتبر سرطان الأنسجة الرخوة هو خامس الأورام الخبيثة فى الأطفال شيوعا ويمثل نحو 7% من مجموع الأورام السرطانية عند الأطفال. وتختلف هذه الأورام كثيرا من حيث التكوين النسيجى وأماكن الإصابة والاستجابة للعلاج ويهدف هذا العمل إلى تقييم السلوك الإكلينيكى ونتائج العلاج لأورام الأنسجة الرخوة الخبيثة عند الأطفال وإعطاء التصور الأمثل لعلاج هذا النوع من السرطانات.

وقد أجرى هذا البحث بمستشفى سوهاج الجامعى على 21 طفلا مريضا بسرطان الأنسجة الرخوة بمراحله المختلفة فى الفترة من يناير 1997 إلى ديسمبر 2000 وقد تم تقسيم هؤلاء المرضى إلى أربعة مراحل قبل الجراحة طبقا لاستراتيجية TNM وأربع مجموعات بعد الجراحة طبقا لبرتوكول IRS وقد شملت خطة العلاج، بالإضافة إلى الجراحة، العلاج الاشعاعى والعلاج الكميائى طبقا لمرحلة الاصابة والطريقة الجراحية التى تم بها استئصال الورم.

وقد انتهى البحث إلى ما يلى:-

- تشخيص سرطان النسيج العضلى فى 10 مرضى (6 %، 47) فى حين تشخيص أورام غير النسيج العضلى الرخو الخبيث فى 11 مريضا (4%، 52) وان هناك فروق ذات دلالة إحصائية بين النوعين من السرطانات من حيث متوسط عمر المريض (3، 10 سنة فى سرطان النسيج العضلى بينما 3، 7 سنة فى النوع الثانى). متوسط حجم الورم (8، 7سم × 2، 5 سم فى سرطان النسيج العضلى بينما 1، 9سم × 4، 6سم فى النوع الثانى). درجة الورم (100% فى حالات سرطان النسيج العضلى بينما 5 ، 45% فى النوع الثانى). اصابة الغدد الليمفاوية (70% فى حالات سرطان النسيج العضلى بينما (1، 185 فى النوع الثانى). انتشار الورم فى أجزاء متفرقة من الجسم (60% فى حالات سرطان النسيج العضلى بينما صفر% فى النوع الثانى).

ليس هناك دور فعال للجراحة بكل أنواعها بالإضافة إلى العلاج الاشعاعى والكميائى فى المراحل المتأخرة (3، 4) من سرطانات الأنسجة الرخوة باختلاف أنواعها عند الأطفال بينما الاستئصال الموضعى الواسع مع أو بون العلاج الاشعاعى أو الكيميائى قد حقق نجاحا ملموسا فى المراحل المبكرة من الورم (100% فى المرحلة الأولى 60% فى المرحلة الثانية).

تعتبر أورام الجزع والمنطقة الخلفية للغشاء البريتونى هى أسوء المناطق استجابة للعلاج وقد شملت المعدل الأكثر من الوفيات.

ونستخلص من هذا البحث أن ورم نسيج العضلات الخبيث عند الأطفال سيىء للغاية لسرعة انتشاره فى أجزاء متفرقة من الجسم مقارنة بالأورام المختلفة الخبيثة لغير الأنسجة العضلية الرخوة حيث تعتمد فيها النتائج فى المقام الأول على سن الطفل عند الإصابة بالمرض ونوع الهستولوجى ومرحلة السرطان عند التشخيص وقد حقق سرطان الأنسجة الليفية فى الأطفال حديثى الولادة وسرطان الأوعية الدموية فى الأطفال أقل من سنة أفضل النتائج ، بينما كانت سيئة للغاية فى الأطفال الأكبر سناً ولهم نفس تشخيص هذا النوع من السرطان.

مجلة جنوب الوادى الطبيـــة

جامعة جنـوب الوادى

كلية الطب بسوهاج

العدد (8) رقم (2) يوليـــة 2004