Original Article

Posterior One Stage Surgery in Huge Sacrococcygeal Teratoma. Local Experience in Sohag University

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ARTICLE INFO

Received: 6 May 2014
Accepted: 16 August 2014

Key words: Sacrococcygeal teratoma, One stage operation, Chevron incision, Urinary and fecal incontinence

ABSTRACT

Background: Sacrococcygeal teratoma (SCT) is the most common solid neoplasm of newborns and still its surgical techniques for total excision are controversial. Objective: The evaluation of the one stage surgical excision. Patients and Methods: Eight patients with large sacrococcygeal teratoma presented to Sohag University hospital in the period between 2009 and 2012 with an age ranged from 34-42 weeks and the sex distribution showed 6 females and 2 males. All cases were examined clinically preoperative for the size of the teratoma (ranged from 8*10cm to 20*30cm), the neurological status (all patients were neurologically intact), and presence of other congenital anomalies. Lumbosacral MRI was done for all cases preoperatively. One stage operation (Chevron incision) was done for complete excision of the teratoma and sent for histopathological analysis. Postoperative assessment for the neurological function and imaging study was done. Results: After complete surgical excision of the teratoma assessment of the neurological state was done and there were no cases of lower limb weakness. Two patients appeared to have urinary problems one with urinary straining and the other had urinary incontinence. Only one patient experienced chronic constipation. No patients developed fecal incontinence. No patients experienced recurrence within the period of follow up (form 3 months to 3 years). Conclusion: One stage surgical excision for large SCT can be done safely with low morbidity and good outcome and need experience and more practice for better results.

INTRODUCTION

Sacrococcygeal teratoma (SCT) is the most common solid neoplasm of newborns with a reported incidence of 1 in 35000-40000 live births. Females are affected more frequently with a female to male ratio of almost 4:1. The tumor arises from the Hensen’s node which is made up of totipotent primitive cells. Most germ cell tumors in the neonatal period are benign and are classified as either mature or immature teratomas. The diagnoses of SCT are being increased more within the last second and third trimesters with the advent of improved antenatal imaging techniques, and planned Caesarian delivery is being offered to some pregnant women with better outcome. Previous studies have shown a significant relationship between age of the patients at diagnosis and outcome of treatment of SCT. The incidence of malignancy at the neonatal period is approximately 10%, against almost 100% at the age of 3 years. Therefore, early surgical intervention, and complete excision of the tumor are all important prognostic factors in the outcome.

Prognosis depends also on the tumor size, the histological type as well as the degree of prematurity.

PATIENT AND METHODS

The medical records of eight patients with huge SCT admitted to Sohag University Hospital (neurosurgical department) during the period from January 2009 through June, 2012.

Data recorded concerning maternal history, mode of delivery, age at presentation, patient sex, presenting clinical features, associated anomalies, various laboratory and imaging investigations, operative details, and resection margins were performed. Early and late postoperative functional results and complications were also reviewed. Each patient was evaluated with regard to her/his recurrence free survival, postoperative bowel and urinary tract function.

The birth weight of these patients ranged between 3350-5150 gm. (mean: 4083.33 gm.), the gestational age ranged between 34-42 weeks (mean: 37.8). All were delivered by cesarean section. The mean weight of excised tumors was 1520.83 gm. (range: 1250-2125 gm.) mean 1715gm (Fig. 1).
Surgical technique
Our usual operative approach for excision of this tumor is to make a Chevron incision, after a rectal tube impregnated with paraffin has been inserted into the rectum to make its recognition easier. We then transect the lower sacrum and control the middle sacral artery early in the operation to avoid unnecessary hemorrhage. The tumor is then dissected out en bloc from the rectum that has been made easily visible with the tube in the rectum (Fig. 2).

Follow up
The follow up period ranged from 3 months to 3 years (mean, 18.5 months). The postoperative follow up included: wound complications as disruption or necrosis and the neurological status of the lower extremities and the sphincters.

RESULTS
The demographics of the eight patients are shown in (Table 1). The majority of patients were females, with female to male ratio 3:1. The gestational age ranged between 34–42 weeks (mean: 37.8 weeks). The size of the teratoma ranged from 8*10cm to 20*30cm and the weight ranged from 1100gm to 2125gm.

Table (1)
<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percentage</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>2</td>
<td>25 %</td>
<td>1</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>75 %</td>
<td>3</td>
</tr>
</tbody>
</table>

No recurrence was reported in any of our cases. Among the 8 cases, 2 patients had bladder dysfunction (one had urinary straining and the other had urinary incontinence), no patients had fecal incontinence, one patient had chronic constipation, no patients had motor weakness of the lower limbs (table 2).

Table (2)
<table>
<thead>
<tr>
<th>Complication</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrence</td>
<td>0</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Urinary incontinence</td>
<td>2</td>
<td>25 %</td>
</tr>
<tr>
<td>Fecal incontinence</td>
<td>0</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Chronic constipation</td>
<td>1</td>
<td>12.5 %</td>
</tr>
<tr>
<td>Motor weakness</td>
<td>0</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Bad cosmoses</td>
<td>3</td>
<td>37.5 %</td>
</tr>
</tbody>
</table>

Good postoperative cosmetic results were noted in 5 out of the 8 patients (62.5%). The cosmetic results were considered acceptable in 2, while 1 patient will need revision of the scar due to poor cosmetic outcome. Histological analysis of the resected specimen showed mature teratoma in 6 patients and various foci of immature teratoma in 2 patients.

Fig. 1: Image showing a patient with huge sacrococcygeal teratoma
DISCUSSION

Sacrococcygeal teratoma is the most common tumor diagnosed among newborns. In our series, female to male ratio was 3:1; which is consistent with that noted by Winderl and Silverman. The mean birth weight of the studied cases was 3616.66 gm with a range of 2750-5150 gm. This wide range is attributed to the relatively huge tumors weighing 1850, 2050, and 2125 gm that shifted our results from those demonstrated by Perrelli et al. who had a mean birth weight of 2916 gm with a range of 1770-3640 gm.

The gestational age at birth in our series (37.0 ± 2.8 weeks) was comparable with those reported by authors (35.0 ± 3.1 weeks).

The incidence of congenital anomalies associated with sacrococcygeal teratoma varies from 5 to 26 %.

In our series, congenital anomalies in the form of PS, VSD, and PDA were recorded in 20 % of cases.

Robertson et al recommended staged resection, by initial devascularization through ligation of the internal iliac arteries and middle sacral artery to correct the hyperdynamic state, lessens the risk of hemorrhage and decrease the blood loss during the subsequent tumor resection. But they also reported that staged resection carried the theoretical risk of malignant transformation in the retained tumor.

Therefore, they recommended using histological grading as guide to urgency of resection of the residual tumor. We believe that such approach is not necessary, and one-stage approach, whether entirely transperineal or combined transabdominal/ perineal can be safely accomplished in all cases.

Many reports highlighted the potential postoperative complications after SCT resection. Postoperative rectal dysfunction was found in up to 40% of cases in some series. Constipation and fecal incontinence occurred in 12.5% of our cases. The frequency of postoperative bladder dysfunction in our series (25%) is quite favorable with the previously reported literature, in which it ranged between 20% to 50% of patients.

A long-term observation and follow up is required in these patients to deal with any urinary or bowel dysfunction and the appearance of delayed complications.

CONCLUSION

One stage surgical excision for large SCT can be done safely with low morbidity and good outcome and need experience and more practice for better results.

REFERENCES
