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Sacrococcygeal Teratoma in Newborn: 4 Cases Had Surgery at Danang Women and Children Hospital

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Abstract

Objective: Assess the feasibility and results of treatment with sacrococcygealteratoma (SCT) in newborn.

Methods: serial cases report.

Results: in 2 years (2012 - 2013), we have 4 cases surgery includes 1 male and 3 female in newborn. All 4 cases were classified I tumors, was diagnosed before birth. The tumors were completely removed, with no serious complications. Long-term follow-up shows no recurrence of tumors in clinical practice as well as ultrasound or AFP.

Conclusions: the sacrococcygeal teratoma can be diagnosed early and surgical treatment in newborn to avoid the risk of malignancy. However, it should be treated in specialized hospitals.

Keywords: Sacrococcygealteratoma; Ultrasound; AFP(alpha fetal protein)

Introduction

Sacrococcygealteratomas (SCT) is a type of tumor mostly occurs in newborns. The disease rate of about 1 / 35000-40000 live births, occurring 35-60% of these types of teratomas, tumors found in girl than in boy [1-3]. According to the authors, 97% of SCT in newborn is benign, remove all tumor surgery chosen priority and without chemotherapy [4]. If the tumor is surgery after 2 months of age, the rate of malignancy was 50% - 60% and 75% at 1 year [1]. Therefore, diagnosis and surgery as soon have a very important role in the treatment and prognosis. We had meet and surgery the 4 cases of SCT in newborn at my hospital. Purpose: to assess the possibility and results of treatment with SCT in newborns.

Materials and Methods

The 4 cases SCT in newborn had been operated at surgery department between August 2011 to November 2013. We description series cases and follow up the process of development.

Classifications

SCT is divided into 4 type accordingAltman, identical to AAPSS (American Academy of Pediatrics, Surgery Section) [5]:

1) Type I: Tumors are external, with a small presacral component, and carry the best prognosis (47%).

2) Type II: tumors are predominantly external with a large intrapelvic portion (35%).

3) Type III: lesions are predominantly intrapelvic with abdominal extension with only a minor external component (10%).

4) Type IV: lesions are entirely intrapelvic and abdominal (8%).

Surgery: the different operative steps (sacral approach) are described in (Figure 1).

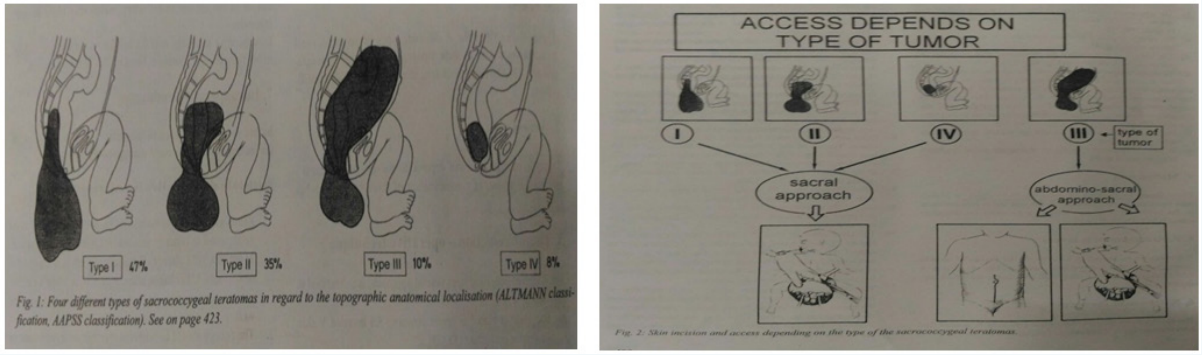

Figure 1: The different operative steps (sacral approach) are described.

a. The child is placed in prone position. An inverted V skin incision is performed.

b. The amount of skin excised is dependent on the size of the tumor. A 2 - 3cm skin rim, dorsal to the anus should be left in place.

c. By mainly digital dissection the tumor is dissected at it lateral parts.

d. The coccyx is transected by diathermy and removed in continuity with the tumor.

e. To avoid lesion of the rectum, dissection of the coccyx and dissection of the tumor from the rectum can be made either by putting the finger in the rectum or by using an endoscope being place into the rectum. This enables to identify the posterior side of the rectum respectively the posterior rectal wall by transillumination of the light of the endoscope.

f. During transection of the coccyx the middle sacral vessels are ligated and cut.

g. In case the tetratoma type III an abdominal - sacral approach is necessary.

Follow up: to 3 years

A. Factors evaluated

1) Review before birth.

2) Tumor size.

3) Type u

4) Surgery.

B. Subscribe postoperatively

1) Defecation

2) Urination

3) Advocacy diplegia

4) Recurrence

Results

A. Case 1: DOB 14/8/2011 - Boy D., ID: 11129C

i. P: 3610gr. Surgery immediately after birth the baby is 1 day for tumor rupture.

ii. AFP >1210 ng/ml. US: type I

iii. Surgery:

I. Type I

II. An inverted V skin incision

III. Size # 30cm; weight # 1kg

IV. Time: 90 minutes

i. Pathology: Mature tetratoma.

ii. Hospitalization after surgery: 11 days

iii. 50 months old.

I. He is learning to walk

II. Urinate, defecation are normal

III. AFP is normal,

IV. None recurrence (Figure 2).

B. Case 2: DOB 8/9/2012 - Girl C., ID: 18929C

i. Weight: 3700gr. detecting with ultrasound pregnancy.

ii. AFP: 24410 ng/ml. US: type I

iii. Surgery : 10/9/2012

I. Type I

II. Inverted V

III. Size # 30cm; weight # 1200gr.

iv. Time: 150 minutes

v. Pathology: mature tetratoma.

vi. Hospitalisation after surgery: 17 days (infection)

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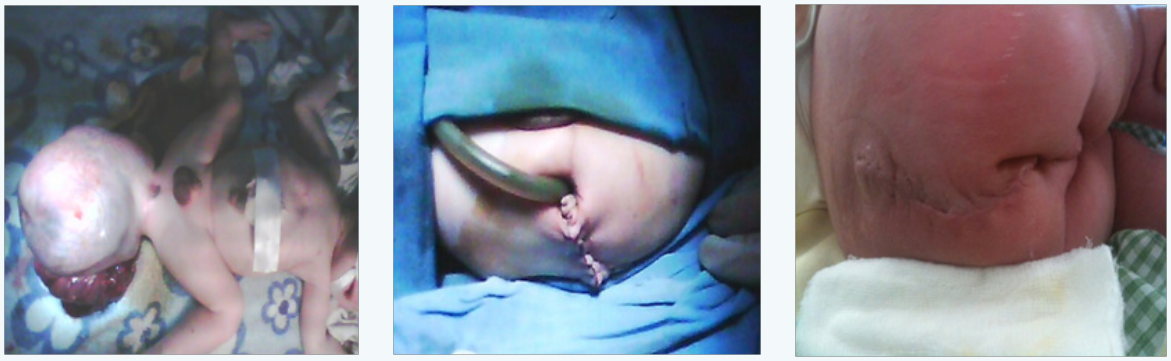

Figure 2: Case 1: DOB 14/8/2011 - Boy D., ID: 11129C

3610gr. Surgery immediately after birth the baby is 1 day for tumor rupture.

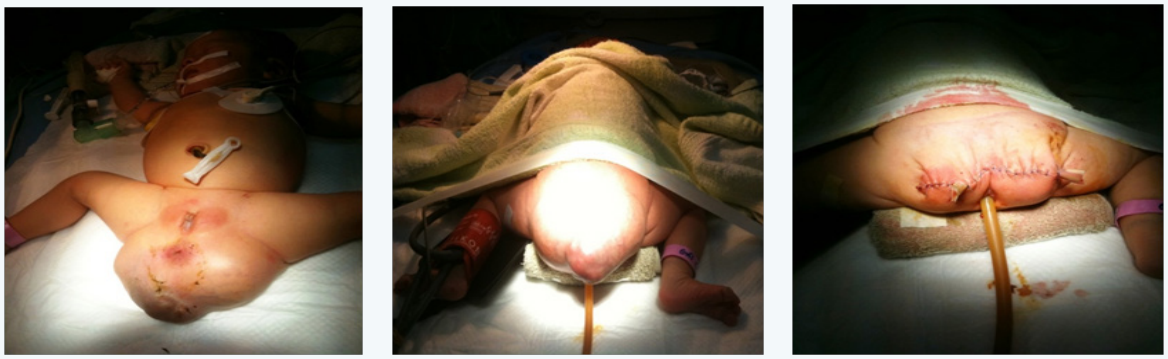

Figure 3: Case 2: DOB 8/9/2012 - Girl C., ID: 18929C

Weight: 3700gr. detecting with ultrasound pregnancy.

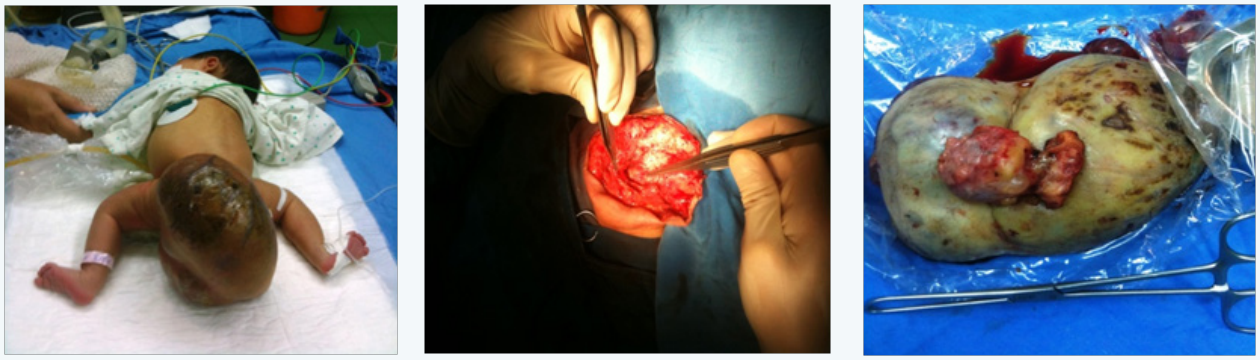

Figure 4: CASE 3: DOB 4/10/2012-Girl K., ID: 20851C

Weight: 3040gr. detecting with ultrasound pregnancy

vii. She is 32months:

I. None recurrence

II. Defecation, urinate: normal

III. Baby goes well

IV. AFP normal (Figure 3).

C. CASE 3: DOB 4/10/2012-Girl K., ID: 20851C

i. Weight: 3040gr. Detecting with ultrasound pregnancy

ii. AFP: 12102 ng/ml

iii. US: type I.

iv. Surgery: 7/10/2012

I. Type I

II. Inverted V

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III. Size # 35 - 40cm; W # 1,5kg

v. Time: 120 minutes

vi. Pathology: immature tetratoma, grade 3.

vii. Hospitalization after surgery: 13 days

viii. She is 25 months:

I. None recurrence

II. Defecation, urinate: normal

III. Baby goes well

IV. AFP normal (Figure 4).

D. Case 4: DOB 29/10/2013-Girl Th., ID: 24459C

i. W: 2450gr. detecting with ultrasound pregnancy.

ii. US: type I.

iii. AFP: 20664 ng/ml

iv. Surgery 1/11:

I. Type I

II. Inverted V

III. Size # 35cm; W # 1,3kg

IV. Time: 180 minutes

v. Pathology: immature tetratoma, grade 3

vi. Hospitalization after surgery: 13 days

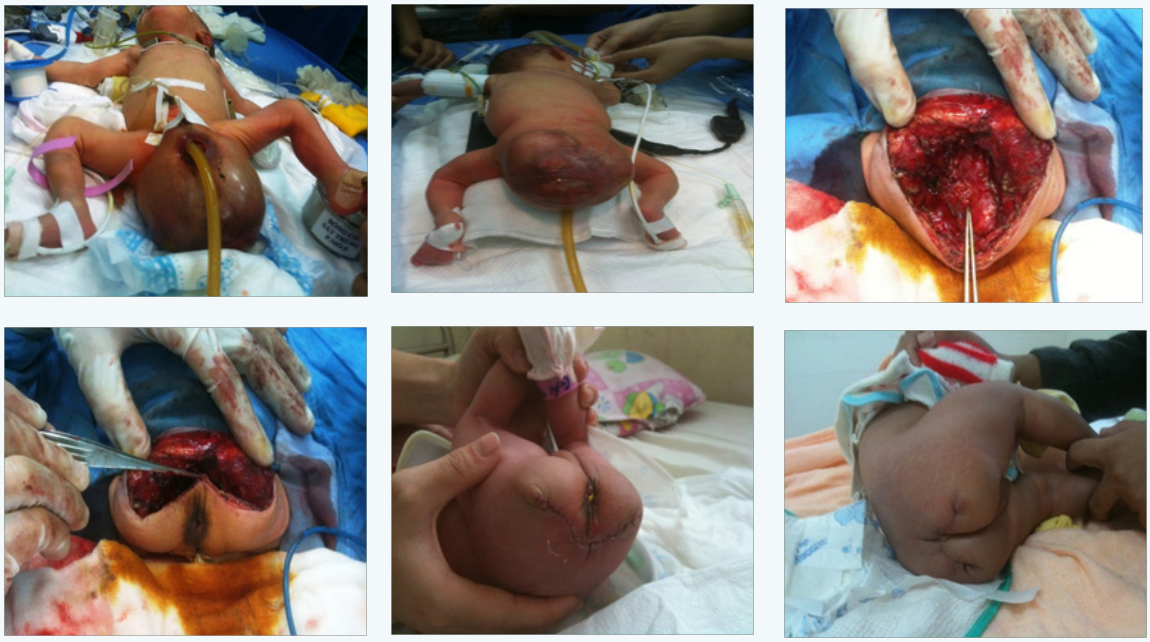

Figure 5: Case 4: DOB 29/10/2013-Girl Th., ID: 24459C

W: 2450gr. detecting with ultrasound pregnancy.

vii. Apter 10 months:

I. None recurrence

II. Defecation, urinate: normal

III. Baby goes well

IV. AFP normal (Figure 5).

Fetal ultrasound could detect the SCT in all 4 cases. It is one of diagnostic imaging technique that is vastly approved and easy to perform. Birth weights of the 4 patients were more than 2500 gram, but weights of the tumors were more than 1000 gram. Therefore, their true weights were rather low. Associated anomalies were not remarkable: 1 case was found to have cerebral palsy by Vietnam National Hospital of Pediatrics when he was 9 month old. He has been treated with rehabilitation. Physical examination and ultrasound play the important role to diagnose SCT, and AFP is necessary to follow postoperatively.

The tumors of all patients were type I, could be removed completely. So the prognosis was good in spite of their rather big size. We tried my best to quickly evaluate the clinical status and perform the operation at the neonatal period with expectation that the tumors were still benign. The operations had some difficulties. We needed to remove completely the tumors with the aim of avoiding recurrence but didn't damage the rectum and the nerve. To achieve this purpose, we had to evaluate well the tumors before surgery in order to classify the tumors and

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make the best incision. The tumors were separated carefully so that the pelvic diaphragm and the external anal sphincter muscle could be less damaged and be quickly recovered. We cut the coccyges and then remove completely the tumors that were located in front of coccyges. We chose the midline incision in the first case because the tumor had small peduncle and we thought it was not so hard to remove the tumor.

Discussion

In 3 other cases, we decided to make inverted "V" or "Y" incisions. The first patient needed a emergency surgery because the tumor was broken leading to acute blood loss. However, the peduncle of the tumor was small, so the operation was performed uneventfully. Through the midline incision, it took 90 minutes (the fastest) to remove completely the tumor. The second patient developed an infected wound, required long hospitalization (17 days). Long-term follow-up showed good result. The patient with cerebral palsy developed weakness of total body muscles; This problem was not due to the surgery. The result of the 4 surgeries was greatly encouraged:

1) no damage to the rectum

2) normal urination and passing tool

3) normal movement of 2 legs

4) no sign of tumor recurrence

Conclusion

After 4 cases had surgery, we found:

a. Prenatal diagnosis plays an important role in the treatment.

b. Time of surgery is very important in the treatment and prognosis. Removal of the SCT should be performed in the neonatal period in order to prevent malignant transformation.

c. The coccyx should be removed together with the tumor in all case. Great care must be taken regarding the inverted V skin incision.

d. It is necessary to follow up patients during the first 3 years in order to promptly detect malignant tumor recurrence.

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