

# Fetal Therapy-Life Saving Procedure for Fetal Chylothorax

Dr Poornima Shankar, Dr T.K. Shaanthy Gunasingh

Department of obgyn, Kilpauk Medical College

**Abstract-** The incidence of fetal pleural effusion is 1 in 15,000 pregnancies in tertiary care centers. This case is being reported to stress on the successful fetal outcome after a fetal intervention of therapeutic fetal thoracocentesis.

**Index Terms-** Fetal thoracocentesis, chylothorax

with polyhydramnios (AFI -24.6 ), isolated fetal left pleural effusion with mediastinal shift to right with no evidence of fetal anaemia .Since fetus needed interventional therapy, expert opinion was sought from interventional radiologist. Here is a picture showing the left pleural effusion (fig-1)

## I. CASE REPORT

### 3 HISTORY:

34 yrs Rh negative G2P1L1 post caesarean pregnancy whose LMP was not known with 32 weeks 5 days gestational age (as per 15 wks scan) referred to KMCH as USG showed fetal left pleural effusion and polyhydramnios. Patient had no history of bleeding/draining PV/pain abdomen. She had regular menstrual cycles-5/30. Married for 3 years and was a non consanguineous one. She had a previous girl child of 1.5 yrs delivered by full term LSCS for abruption placenta with a birth weight of 2.9 kg who is alive and healthy. Anti D was given following that pregnancy. Her present pregnancy was booked and immunized at Thoothukudi municipality hospital. She had no significant medical illness in the past.

### EXAMINATION:

The patient's height was 150 cm and weight 83 kg and BMI-31.11. Her general condition was good, vitals normal and was normotensive. She was not anaemic. She had bilateral pedal edema of grade 1. P/A-uterus corresponded to 34 weeks with mobile head. Suprapubic transverse scar was present. Abdominal wall edema was present.

### INVESTIGATION REPORTS:

CBC, RFT, LFT and urine routine examination were within normal limits. Blood Grouping was O negative. Du test was negative. ICT was negative. Blood sugar levels after glucose load was normal. Serial USG s had been done during AN visits but they did not show any abnormality. Interval growth was adequate. Patient had scan done a day before admission at a private scan centre in Chennai which showed fetal left pleural effusion.

### COURSE OF EVENTS:

On admission, Obstetric USG was done which showed 34 weeks gestational age with polyhydramnios with AFI-18.3 cm and fetal left pleural effusion. In view of the pleural effusion, pt was referred to sonologist for expert USG and doppler. Doppler showed normal doppler parameters and fetal Left pleural effusion (CPR>1). Expert USG done showed 34 weeks gestation



FIGURE-1 FETAL LEFT PLEURAL EFFUSION

After extensive counseling of the patient, under ultrasound guidance, fetal paralysis done with i.m. pancuronium. Under local anesthesia, fetal thoracocentesis was done at 34 weeks 2 days. The needle used was 18 cms. 150 ml of pleural fluid was aspirated. 20 ml sent for analysis. Post procedure fetal heart rate was 180 bpm. Since fetal intervention was done, Inj anti D 300 microgram IM given. A course of antenatal steroids was given.

### PROCEDURE DONE IS SHOWN BELOW: (fig-2 and fig-3)





FIGURE-2

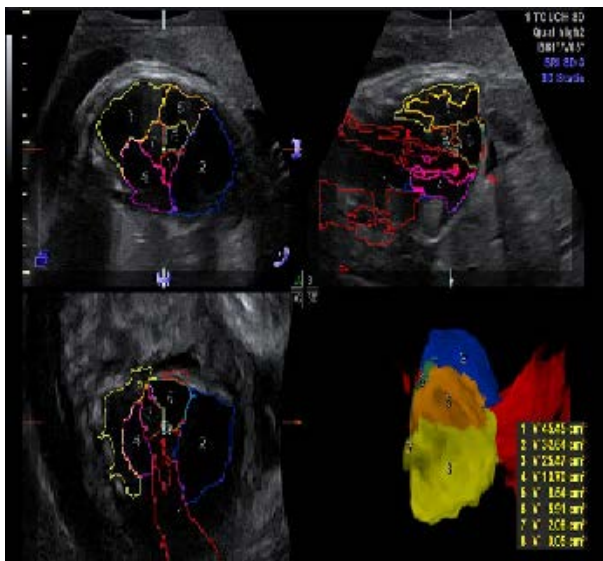


FIGURE-3

USG repeated 4 days after the procedure showed AFI – 21.6 and Left pleural effusion 95.3 cc. Since fluid was reaccumulating, fetal therapeutic thoracocentesis was planned (fig-4).



FIGURE-4

#### THERAPEUTIC THORACOCENTESIS:

At 36 weeks, therapeutic thoracocentesis was done again and aspirated 250-300 ml of straw coloured fluid and sent for analysis. Since re-accumulation was considerable, it was decided to terminate pregnancy soon after the therapeutic thoracocentesis.

#### COURSE OF EVENTS:

Elective repeat LSCS was done on the same day and Inj anti D 300 microgram IM given. Baby was 3 kg alive late preterm girl of 36 weeks which cried immediately after birth. APGAR-1 6/10 5/7/10. Baby was admitted in NICU for observation. Here is the picture showing fetal thoracocentesis. (fig-5)

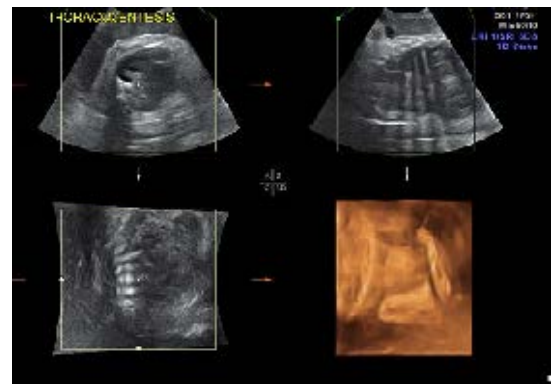


FIGURE-5

#### TREATMENT FOLLOW UP OF THE BABY:

6 hrs later baby developed tachypnoea, subcostal retraction and decreased air entry on the left side. 7 hours after birth, Intercostal drainage (ICD) done - 10 ml haemorrhagic fluid drained. FFP 30 ml three units were given on days 2, 3, 4. ICD - drained 100ml over first 3 days, then <10 ml/day for 2 days, finally nil drainage from day 6. ICD removed on 7th day. Baby was in 'rooming in' care for 23 days for follow up of pleural effusion. Inj. Octreotide 10mcg/kg S.C started on day 15 and continued for 2 weeks. Higher antibiotics given. Medium chain triglyceride oil given for 6 weeks.

Serial USG chest - showed gradually decreasing pleural effusion with no evidence of pleural effusion after 30 days. Serial Chest X rays showed improving lung expansion with no evidence of effusion after 30 days. Baby was discharged on 30th day

#### INVESTIGATIONS DONE FOR THE BABY:

Blood grouping: B positive. DCT was negative. TORCH screening was negative. CBC, RFT, LFT, TFT, Peripheral smear were normal. NEC showed no growth. CRP was negative.

#### **PLEURAL FLUID ANALYSIS:**

##### Antenatal

First thoracentesis showed protein-3.3g/dl, leucocyte - 600cells/dl (>85% **lymphocytes**). Subsequent thoracentesis after 11 days showed protein-3.2g/dl, leucocyte -600cells/dl (>82% **lymphocytes**).

##### Postnatal

Initial Pleural fluid analysis showed protein-4.8g/dl (alb-2.8), leucocyte -300 cells/dl (**predominantly lymphocytes**), sugar - 42mg/dl, C/s - no growth, Gram staining - no organisms. Subsequent analyses showed protein-2.4g/dl, leucocyte -400cells/dl (**predominantly lymphocytes**), sugar-33mg/dl, TGL- 269mg/dl, Cholesterol - 230mg/dl

**Echocardiogram-** Showed normal biventricular function and persistent foramen ovale

#### **DISCUSSION:**

Fetal hydrothorax may be primary - due to chylous leak (most common) or secondary - associated with immune or non immune hydrops. The main complications may be due to consequence of pulmonary compression/hypoplasia due to chronic intrathoracic compression, hydrops due to mediastinal shift, cardiac compression and venacaval obstruction. The key feature is predominant lymphocytosis .

#### **FETAL INTERVENTION:**

The goals of fetal intervention are to prevent lung compression allowing normal development of lungs, prevent or reverse hydropic changes and hydramnios avoiding preterm delivery and fetal death and to improve post natal respiratory function .

#### **MANAGEMENT SCHEME FOR FETAL PLEURAL EFFUSION:**

Thoracentesis is done immediately if there is fetal distress. If not, repeat USG is done in 2-3 weeks. If effusion is decreasing patient can be followed up with scans every 2-3 weeks. If effusion stable, thoracentesis is done immediately before delivery to facilitate resuscitation and expansion of lungs (to maintain oxygenation). If effusion increases, diagnostic AMNIOCENTESIS-karyotyping and cultures are done to rule out infections. Concurrent THORACENTESIS is done for pleural fluid analysis. Lung size and distensibility should be assessed by USG before and after thoracentesis . If lung expansion less than normal, surgical interventions may be considered in the form of pleuroamniotic shunting or repeated therapeutic thoracenteses .

#### **II. CONCLUSION**

Thoracentesis is a comparatively simple procedure for mothers and fetuses and should be the first choice of fetal intervention for treating fetal hydrothorax.

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#### **AUTHORS**

**First Author** - Dr Poornima Shankar, Department of obgyn, Kilpauk Medical College, drpoornimashankar@gmail.com, 9486145693

**Second Author** - Dr T.K. Shaanthy Gunasingh, Department of obgyn, Kilpauk Medical College