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Case Report

Placental Pathology in Twin Transfusion Syndrome- A Case Report

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ABSTRACT

Twin transfusion syndrome (TTS) is a rare condition seen in monozygotic twins with monochorionic placenta & occurs due to intrauterine blood transfusion from donor twin to the recipient through arterio-venous anastomoses. This leads to increased perinatal mortality. We present a rare case of TTS diagnosed on the background of clinical history, ultrasonography & confirmation with the histopathological examination of placenta which improved the outcome of pregnancy.

Key words – Placental Pathology, Twin Transfusion Syndrome

INTRODUCTION

Monozygotic twins occur in 3-5/1000 pregnancies. Twin transfusion syndrome (TTS) occurs in 5-38% of monochorionic twins resulting from intrauterine blood transfusion from donor twin to co-twin via placental arterio-venous anastomoses, [1] this result in increased fetal & neonatal mortality, premature delivery & postnatal complications in surviving twin. [2]

CASE REPORT

A 22 years old primigravida with 25 weeks of amenorrhea presented with abdominal discomfort. Ultrasonography (USG) revealed a twin pregnancy with severe oligohydramnios & intrauterine growth retardation (IUGR) in one of the twin & polyhydramnios in another.

Management

Polyhydramnios was corrected with amniocentesis. Elective caesarean section revealed monozygotic male twins showing significant difference in weights (300 gm & 2400 gm). Donor twin was dead & pale, while survived recipient twin was large & plethoric with haemoglobin level of 16 gm/dl.

Histopathology

Gross examination of placenta showed a single placental disc with two amniotic sacs of dissimilar size. Donor placenta was small pale, showed collapsed vessels with velamentous cord. Recipient placenta was large, congested & showed

central insertion of cord. External surface showed anastomoses between donor & recipient territories (Figure 1).

Figure 1- External surface of twin placenta showing tortuous anastomotic vessels, donor placenta shows velamentous insertion of cord.

Microscopy revealed diamniotic monochorionic placenta. Recipient portion showed congested anastomotic vessels, while donor territory showed avascular villi, perivillous fibrin & calcification consistent with changes of intrauterine death (Figure2).

Follow up

On day 3, serum bilirubin of the recipient twin raised to 19 mg%, was settled with phototherapy. Symptoms of heart failure or neurological deficit didn't develop within 6 months of follow up.

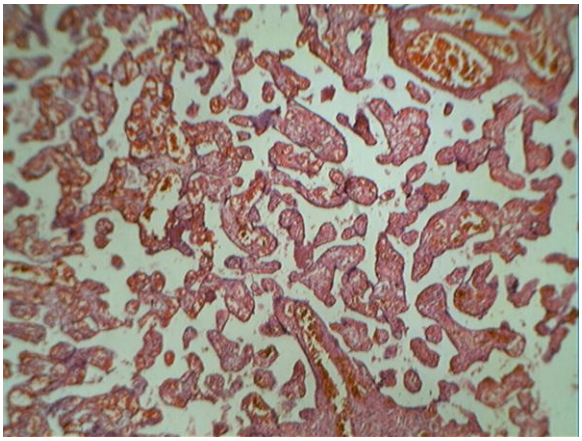

Figure 2 A - Photomicrograph of recipient placenta showing tortuous anastomotic vessels. (Haematoxylin & Eosin 100x).

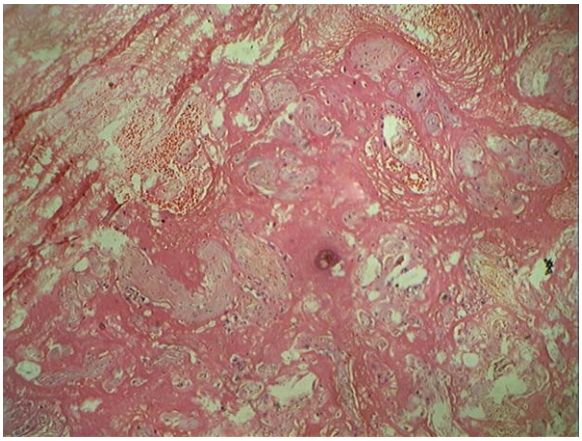

Figure 2 B showing donor placenta with collapsed vessels & avascular villi. (Haematoxylin and Eosin 100x).

DISCUSSION

TTS, a rare complication of monozygotic twin pregnancy occurs due to arterio-venous anastamoses formed during early angiogenic phase of placental development & function later due to change in blood pressure because of uterine contractions. TTS results in anemia & IUGR in donor twin & fluid overload in recipient twin. [3] Velamentous cord insertion is more common & prone for compression resulting in decreased umbilical vein flow to the donor & enhancement of the flow to the recipient. [4]

Surviving twin has significant risk from symptoms related to thromboembolic episodes. Many cases present with excess fundal height & premature rupture of membranes due to polyhydramnios. Donor twin presents with IUGR, oligohydramnios, cardiovascular collapse, hydrops due to anemia & malformations due to compression. Recipient twin reveals polyhydramnios, arterial hypertension & hyperbilirubinemia. [5, 6] TTS cases reveal intertwin hemoglobin & birth weight difference of more than 5 gm/dl and 20% respectively. [3] Management includes

endoscopic laser surgery & amniocentesis. [7, 8]

Diagnosis of TTS is confirmed with histopathology of placenta which reveals diamniotic monochorionic placenta with vascular anastomoses. [5, 9]

CONCLUSION

TTS is diagnosed with histopathological examination of placenta. Diagnosis of TTS & follow up of surviving twin helps to prevent further complications & to improve the outcome of pregnancy.

REFERENCES

1. Terence Zach, Micheal Barsoom. 2010. Twin to Twin Transfusion Syndrome. www.emedicine.medscape.com/article/271752 - overview (accessed Sep 24, 2010).
2. Berghella V, Kaufmann M. 2001.Natural history of twin-twin transfusion syndrome. J Reprod Med. 46 (5): 480-84.
3. Joshi.V. Lesions of placenta in fetal disorders. In: Handbook of placental pathology. Igaku-Shoin Medical Pub 1994. New York. P.92-122.
4. Fries M H, Goldstein R B, Kilpatrick S J, et al. 1993. The role of velamentous cord insertion in the etiology of twin-twin transfusion syndrome. Obstet Gynecol. 81(4): 569-74.
5. Frederick T. Kraus, Raymond W. Redline, Deborah J. Gersell, et al – Multiple pregnancy In: Donald West King, editor –Atlas of nontumor pathology, Placental pathology. AFIP ARP First Series Fascicle 3. Washington DC: American Registry of Pathology, 2004: 249-82.
6. Bruner J P, Rosemond R L. 1993. Twin to Twin Transfusion Syndrome: A subset of the twin oligohydramnios-polyhydramnios sequence. Am J Obstet Gynecol 169(4): 925-30.
7. De Lia J E, Kuhlmann R S, Harstad T W, et al. 1995. Fetoscopic laser ablation of placental vessels in severe previable twin-twin transfusion syndrome. Am J Obstet Gynecol .172: 1202-11.
8. Senat M V, Deprest J, Boulvain M, et al. 2004. Endoscopic laser surgery versus serial amnioreduction for severe twin to twin transfusion syndrome. N Eng J Med. 351(2): 136-44.
9. Eoghan E. Mooney, Stanley J. Robboy – Nidation and placenta. In: Stanley J. Robboy, George L. Mutter, Jaime Prat, Rex C. Bentley, Peter Russell, Malcolm C. Anderson, editors – Robboy's Pathology of the Female Reproductive Tract. 2nd ed. Churchill Livingstone, 2009:829-61.

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