International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Johncy A et al. Int J Reprod Contracept Obstet Gynecol. 2018 Jun;7(6):2497-2499
www.ijrcog.org

pISSN 2320-1770 | eISSN 2320-1789

DOI: http://dx.doi.org/10.18203/2320-1770.ijrcog20182375

Case Report

NT scan: can it prevent second trimester MTP complications?

Anne Johncy*, G. Rohini, Lekha Shri

Department of Obstetrics and Gynecology, Saveetha Medical College and Hospital, Thandalam, Chennai, Tamil Nadu, India

Received: 23 February 2018
Accepted: 28 March 2018

***Correspondence:**
Dr. Anne Johncy,
E-mail: aannejohncy@gmail.com

ABSTRACT

The NT scan (11 to 13 weeks+6 days) is used as dating scan and genetic scan. Now it is emerging as a basic checklist for examination of the whole fetal anatomy and also to identify congenital anomalies in early trimester. Arnold-Chiari malformation type II is the most common which is characterized by displacement of cerebellar tonsils, parts of the cerebellum- fourth ventricle, pons and medulla oblongata through the foramen magnum into the spinal canal. This is usually associated with hydrocephalus and myelomeningocele. This can be prevented by preconceptional folic acid supplementation. Second trimester MTP complications can be prevented if we diagnose congenital anomalies in first trimester itself.

Keywords: Arnold Chiari, Folic acid, NT scan

INTRODUCTION

Arnold-Chiari malformation occurs with an incidence of 0.4:1000 live-birth and is one of the CNS abnormalities that has formed 3% of all abortion and 1-2% recurrent risk. It is characterised by extension of both cerebellum and brain stem extending into the foramen magnum. It is usually accompanied by myelomeningocele. Sonographically it is detected by lemon sign and banana sign. Lemon sign is due to loss of convex contour of frontal bones which appear flattened and inwardly scalloped. Banana sign is by the cerebellum which is wrapped tightly around the brain stem as a result of spinal cord tethering and downward migration of posterior fossa content. The probable etiology may be genetic mutation and folic acid deficiency. This malformation which occurs very commonly is usually detected by second trimester anomaly scan. Second trimester abortion is associated with higher rates of complications than first trimester.[1] Incomplete abortions are significantly more in medical induction. Serious complications like uterine perforations, uterine rupture, and haemorrhage may occur. Termination of pregnancy for fetal anomaly affects parents deeply. They may suffer from post-traumatic stress symptoms and depressive feelings. Social support and time are mechanisms that serve to alleviate grief.[2]

CASE REPORT

Case 1

20-year-old, primigravida with 21 weeks GA, booked outside and immunised with 2 doses of Injection TT has come with anomaly scan done outside showing Arnold Chiari malformation II (fetal head banana shaped with dilatation of bilateral ventricles and meningomyelocele at lumbar level). It was a spontaneous conception. No consanguinity. Dating scan was done. NT scan was not done.

Patient had taken medications for primary infertility with herbal medicines. Patient has regular antenatal check-ups

outside. Folic acid was taken regularly. On examination, patient not anaemic, uterus 20 weeks size, haemoglobin was 10.6 gms%, FBS, PPBS and TFT were within normal limits. Termination of pregnancy was performed with T. Mifepristone 200mg and T. Misoprostol 200mcg 4th hourly. Fetus expelled spontaneously. Placenta with membranes expelled. Digital evacuation done. Female fetus with external anamoly showing myelomeingocele at lumbosacral level. Patient was treated with antibiotics and discharged. Advice to take folic acid tablets preconceptionally for the next pregnancy.

Figure 1: A and B) meningomyelocele at lumbar level; C) fetal head banana shaped with dilatation of bilateral venricles.

Case 2

A 22-year-old Gravida 2, Para 1, Live 1, with last child birth 2 years ago by LSCS came with 18 weeks GA, booked outside and immunized with two doses of Injection TT came to our hospital with anomaly scan done outside showing Arnold Chiari malformation II. It was a spontaneous conception. Dating scan was done. NT scan was not done. Patient did not take folic acid in first trimester.

Anomaly scan – SLIUG corresponding to 18 weeks 2 days with lemon shaped fetal skull. Dilated lateral ventricles seen with dangling choroid (14mm,11mm). Cerebellum not clearly visualised. Cisterna magna obliterated. Lumbosacral spinal canal shows a defect with widening and protrusion of contents.

Arnold Chiari malformation was confirmed, and termination was performed at 19 weeks with T. Mifepristone 200 mg and T. Misoprostrol 200 mcg 4thhourly. After the third dose of vaginal Misoprostol patient had intense pain abdomen and there was a clinical suspicion of ruptured uterus through the previous scar confirmed by bedside scan with fetus and placenta seen outside the uterus in abdominal cavity.

Emergency laparotomy was done and fetus with placenta removed and uterine rent closure done. Fetus was male, weighed 0.218 kg had a posterior open spinal cord defect in the lumbar region, placenta weighed 0.224 kg with retroplacental clots.

Postoperatively blood was transfused, and she was treated with 7-day course of antibiotics. On discharge patient was advised to take folic acid pre-conceptionally after adequate spacing. Both the patients were advised to take first trimester 11-13 weeks scan in next pregnancy apart from dating scan.

Figure 2: A) Lumbosacral spinal defect; B) fetus and placenta seen outside the uterus in abdominal cavity.

DISCUSSION

The diagnostic ability of obstetric ultrasound has increased in last decades. With the present study improved understanding of fetal anatomy, physiology and advances in technology, authors have the ability to detect first trimester aneuploidies.[3]

Since embryogenesis is completed by 12 weeks from LMP fetal anatomical survey can be done little earlier. This become possible with meticulous protocol-based approach.[3]

Major CNS anomalies, cardiac anomalies, abdominal wall defects and limb defects can be diagnosed during 11-13weeks+6days scan known popularly as NT Scan. Apart from nuchal translucency this scan can serve as a first trimester anatomy scan for screening structural defects. However, it needs good training and quality equipment. Second trimester targeted scan should also be performed. Severe anomalies can be effectively detected early to help the patient to make informed choice.[3]

The methylene tetra hydrofolate dehydrogenase gene (MTHF) is one of the key gene involved in folate pathway.[4] Daily intake of 400 mcg folic acid is recommended in the pre-conception period. Folic acid is heat liable. Avoiding over cooking and including fresh green leafy vegetables in diet and fortification of folate can reduce the incidence of folate deficiency and associated congenital anomalies.[4]

Arnold Chiari malformation is diagnosed sonographically by infratentorial findings, effacement of cerebellum and deformation of cerebellum which is called banana sign.[5-8]

In first trimester anatomical scan when TVS is used along with TAS it enhances the complete fetal anatomical survey.[9]

In the present case reports, both patients did not undergo NT scan at the end of first trimester, which could have alerted the attending obstetrician about these lesions early in the gestation so that the second trimester MTP complications can be avoided.

CONCLUSION

The 11-13 weeks+6 days is an important diagnostic tool which is underutilized as ananeuploidy scan can also be used as an anatomy scan and should be offered to all women as a routine standard of antenatal care. Early detection of anomalies can prevent second trimester MTP complications and mental trauma to the mother. As fetal anomalies can present at varying gestational age, standard 18-22 weeks targeted scan cannot be abandoned. However, if a first trimester anatomical survey arouses a suspicion of any defect it can be followed up by an early second trimester scan before pregnancy advances and causes more complications during termination.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Grossman D, Blanchard K, Blumenthal P. Complications after second trimester surgical and medical abortion. Reproductive Health Matters. 2008 May;16(31):173-82.
2. Davies V, Gledhill J, McFadyen A, Whitlow B, Economides D. Psychological outcome in women undergoing termination of pregnancy for ultrasound-detected fetal anomaly in the first and second trimesters: a pilot study. Ultrasound Obstet Gynecol. 2005 Apr;25(4):389-92.
3. Seshadri S. Shifting the fetal anomaly scan to the first trimester. Ultrasound Medicine Biol. 2017;43(S1).
4. Jiang J, Zhang Y, Wei L, Sun Z, Liu Z. Association between MTHDI G1958A polymorphism and neural tube defects susceptibility: a meta-analysis. PloS One. 2014 Jun;9(6):e1011169.
5. Nejadi MN, Zafarani F, Ahmadi F, Rashidi Z. Arnold-Chiari type II malformation: a case report and review of prenatal sonographic findings. Int J Fertil Steril. 2007 Apr;1(4).
6. Goldstein RB, Podrasky AE, Filly RA, Callen PW. Effacement of the fetal cisterna magna in association with myelomeningocele. Radiology. 1989 Aug;172(2):409-13.
7. McLone DG, Dias MS. The Chiari II malformation: cause and impact. Childs Nerv Syst. 2003;19(7-8): 540-50.
8. Barkovich JA. Congenital malformation of the brain and skull. In: Barkovich JA(ed). Pediatric Neuroimaging. 4th ed. Philadelphia, PA: Lippincott Williams & Wilkins;2005:378-84.
9. Elamaran E, Daniel S, AN RG. A prospective study to evaluate the efficacy of 11-13+ 6 weeks anatomy scan in detecting fetal structural anomalies compared to traditional 18-22 weeks scan. Int J Reprod Contracept Obstet Gynecol. 2017 May;6(6):2431-7.

Cite this article as: Johncy A, Rohini G, Shri L. NT scan: can it prevent second trimester MTP complications? Int J Reprod Contracept Obstet Gynecol 2018;7:2497-9.