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Effectiveness of prenatal ultrasound examination at the second trimester in detecting congenital abnormalities

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Objective

Targettted fetal anatomy examination at the second trimester provides the detail screening. Anomaly scan in government hospital of Nepal is less heard due to more patient flow and no patient appointment system. Screening for fetal abnormalities is the main objective of prenatal ultrasound examination. In this study we highlighted the significant of prenatal ultrasound examination at second trimester for anomaly screening.

Methods

This was a hospital based retrospective study done during the period of 2017 Jan to 2019 Jan in the Department of Radiology, Ultrasound Unit, Pokhara Academy of Health Sciences (PoAHS), Nepal. PoAHS was former called as Western Regional Hospital, which is also a tertiary hospital covering a population of about 2.4 million of Gandaki Province. Not all the patient who came for antenatal check up during the second trimester was enrolled for the study. Patient who were particularly prescribed for “anomaly scan” by the Obstetricians during that time frame were given appointment for the scan. Two consultant radiologists with more than three years of experiences in fetal scan performed all the scans. The mean time of 30 minutes was allocated for each scan, hence all the patients undergoing the procedure were appointed to come early morning in the first hour of outpatient department of Radiology. No any preparations were required. They were asked to bring a visitor/ relative for possible counseling and pitfalls. Transabdominal ultrasound examination using the obstetrics setting in Mindray DC-93 (machine) were performed. Each image was saved in the machine. Anatomical systemic evaluation of fetus were done using the ISUOG guidelines for performing the mid-trimester US scans. All findings of detected anomalies were discussed with the obstetricians following which the parents/ close relatives were counseled. Mothers were counseled for termination of pregnancy in case of major abnormalities. In case of minor abnormalities follow up US scan was advised after referring to the specialized obstetricians. Maternal age, parity, any history of previous any anomalies detected, exposure to any radiation or drugs, history of other disease were recorded during the filling of consent form. Ethical clearance was obtained from the hospital administration. Descriptive analysis was using SPSS version 20.

Results

According to the hospital registry department, there were approximately 13000 deliveries during that period. Patient who underwent anomaly scan with appointment and registered with their information in the Department of Radiology, Ultrasound Unit were 194. Among them 14 (7.2%) had congenital anomalies detected during the anomaly scan (18-22 weeks). Patient was selected by the obstetrician during the ante-natal check up (ANC) either by asking the patient history or by mother age or any symptoms or chance of being abnormalities. Among the detected anomalies, there were seven (50%) cases involving central nervous system. 2 cases had skeletal dysplasia, 2 cases had urinary tract related anomalies, 2 had lungs related anomalies and one had single umbilical artery with polyhydroamnios.

Conclusion

Institutions and hospitals in Nepal with low income per capacita, government policy to be made for compulsion of fetal anomaly scan at second trimester for every pregnant mother wherever possible to reduce the high perinatal mortality and morbidity and to improve the feto-maternal well being and bringing up the healthy child.

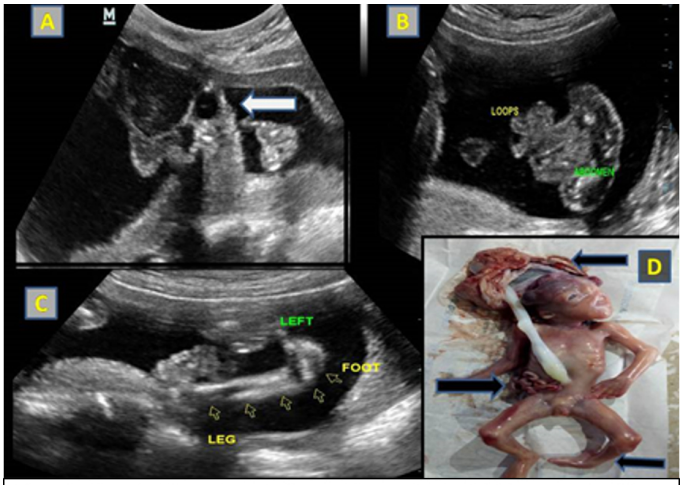


Figure 2. Illustrated figure showed absent of bony calvaria with “frogs eye” sign (Arrow head) A in 19 weeks of pregnant women; Protrusion of bowel loops from the defect of abdominal wall B ; left leg with club foot showing inward rotated foot (C); Pictograph showed exposed brain tissue, exposed intestinal loops and left leg with club foot (Arrowheads) [D].

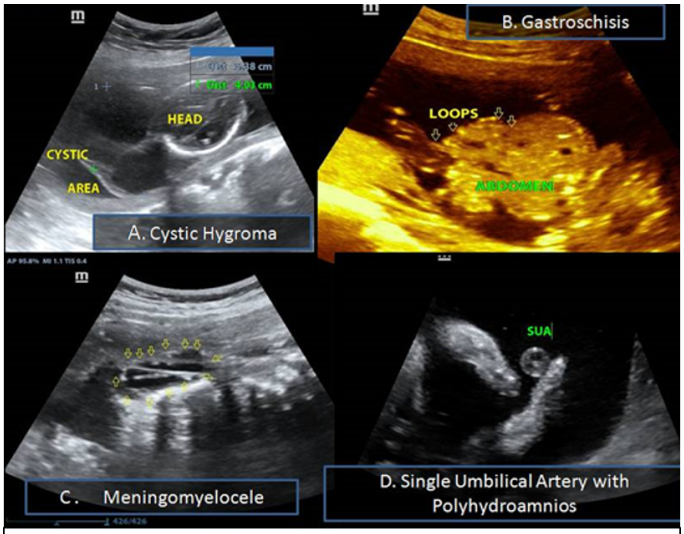
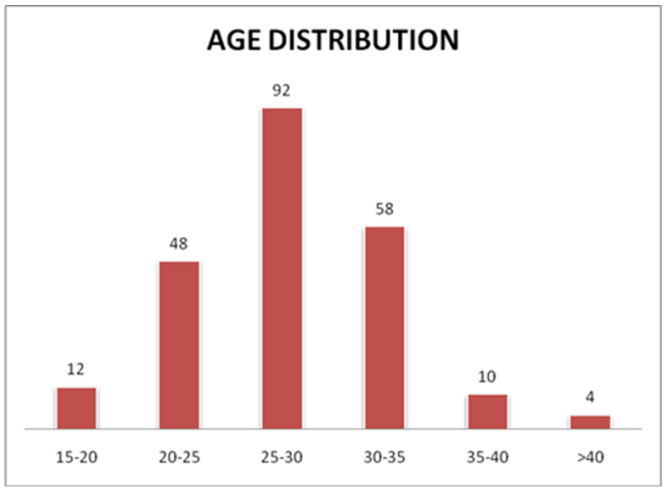


Figure 3. Illustrated images demonstrated other major malformations Cystic Hygroma (A), Gastroschisis (B), Meningomyelocele (C) and Single Umbilical Artery (D) in different patients during the 18-22 scan respectively.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