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LEVEL II ULTRASOUND: A KEY MILESTONE IN PRENATAL ASSESSMENT, EMPOWERING EXPECTING PARENTS

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ABSTRACT

Level II ultrasound conducted between 18–22 weeks of pregnancy is vital for identifying congenital anomalies, improving maternal and neonatal outcomes, especially in resource-constrained settings. This article discusses tragic case of an anencephalic baby born to 27-year-old mother due to missed anomaly scan. Despite advancements in ultrasound technology, barriers like lack of awareness and socio-economic constraints hinder its utilization. The case underscores urgent need for comprehensive education on the importance of level II scans and proactive measures by healthcare providers to prioritize these evaluations. Early detection allows families to make informed decisions, mitigating adverse maternal-foetal outcomes and psychological distress.

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INTRODUCTION

Level II Ultrasound, also known as the anomaly scan, holds paramount importance in modern obstetric care, particularly in developing countries with limited resources. Genetic and congenital abnormalities continue to pose significant health care challenges and is one of the major causes of neonatal morbidity and mortality. This scan conducted between 18 to 22 weeks of pregnancy allows for an in-depth assessment of the baby's anatomy, including vital organs like the heart, brain, and kidneys and to detect any structural abnormalities.Early detection of congenital issues facilitates timely medical interventions, counselling, and comprehensive pregnancy management plans, significantly improving outcomes for both mother and child[4] **(**Wilson R.D, 2014). Additionally, Level II USG evaluates placental health and amniotic fluid levels, crucial factors in monitoring foetal growth and development. In developing countries like India, healthcare disparities exist among regions and groups with access to advanced tertiary care treatments limited especially for the new born babies. The result is a huge financial burden on parents in case the baby is born with congenital anomalies or in case of maternal complications. To elaborate and illustrate the importance of level II ultrasound,presenting a case of baby born without head being formed (anencephalic baby) but with beating heart.Imagine the plight of the mother who was hoping the birth of a living baby after long gestation period but was devastated and shattered on seeing a deformed child.A timely Level II scan and intervention could have saved the mother from ordeal of futile pregnancy and from going through one of the most painful experiences, both physically and mentally. 27 years old female G2P1L1 with one previous live birth via normal vaginal delivery to a healthy female child, presented to the hospital at 37weeks+1 day of gestation with complaints of pain in lower abdomen and leaking per vagina for 2 hours. On abdominal examination, her fundal height was corresponding 30weeks. On going through her investigations, it was found that she had only preliminary investigations done (Blood group, HIV/Hepatitis B/VDRL andTSH) at 8weeks and an ultrasound done confirming single live intrauterine foetus of around same age. On hospital arrival, urgent ultrasound (USG) was sought to rule out restricted foetal growth and low-lying placenta. During ultrasonography, it was found that the foetus had no cranial vault just facial structure somewhat visible, though cardiac activity was present but the foetus gestational age via USG was near 30weeks with all signs suggestive of Anencephaly baby.Per speculum examination revealed open os with cephalic presentation and hair like structure seen coming out (Figure 1). Per vaginum (PV) examination revealed her to be 6-7cm dilated with cephalic like presentation (doughy consistency), membranes absent, presenting part at -1 station. Patient and attendants were counselled regarding the patient's

condition and the baby's prognosis. In a few hours, patient delivered a female baby (902gms) with anencephaly (Figure 2). The baby died in a few minutes after birth with the parents choosing not to resuscitate the baby (Figure 3,4). The harder and disturbing part was to let the mother give up her baby both physically and mentally. Amid the joy of life's greatest anticipation, she faced the heart break of holding her deformed baby for the first and last time. The use of ultrasound for detecting congenital anomalies gained recognition in the early 1970s when Campbell et al[1]. published a seminal paper in The Lancet documenting the ultrasound-based diagnosis of anencephaly at 17 weeks of gestation, which led to the elective termination of the pregnancy. This represented a breakthrough in prenatal diagnostics, emphasizing the value of ultrasound in detecting foetal anomalies early. Before this milestone, Bertil Sundén[3] in 1964 and William Garrett[2] in 1970 contributed with anecdotal reports of diagnosing congenital abnormalities in cases of polyhydramnios, including anencephaly and polycystic kidney disease, respectively. Over time, with advancements in ultrasound technology and development of 3D imaging, Level II ultrasound has significantly enhanced the ability to detect detailed foetal anomalies, offering parents and healthcare providers critical information for prenatal care decisions.

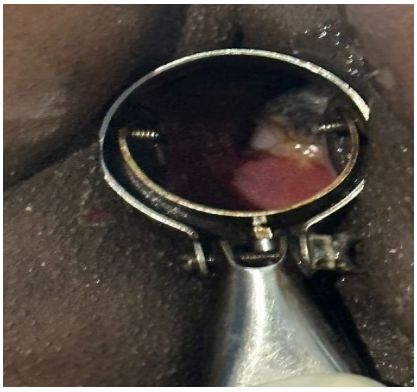

Figure 1. Per speculum examination showing hair like structure coming through the cervix

Figure 2. Birth of a Female Anencephaly child via vaginal delivery

It is unfortunate and disheartening that, even in the 21st century, many pregnant women do not undergo a Level II ultrasound (USG) due to factors such as illiteracy, poverty, inadequate resources, and lack of family support. This scan, typically performed between 18 and 22 weeks of gestation, is considered one of the most crucial evaluations during pregnancy. It not only detects congenital anomalies but also prepares parents for the potential outcomes of the pregnancy. In cases where anomalies are detected, it empowers parents with the choice to either prepare for the challenges ahead or opt for termination to avoid the emotional trauma of carrying such a pregnancy to term. Patient in the present case, on analysing the past obstetric history, revealed that she was given an appointment for a Level II USG within the recommended gestation period. However, due to family commitments requiring her to travel to her village, she missed the scan. The family, influenced by the assumption that her previous pregnancy was uneventful, did not prioritize the ultrasound. Such scenarios are not uncommon in India, where many mothers and families, particularly multigravidas or those with living children, often presume that a prior healthy pregnancy ensures normal outcomes in subsequent pregnancies.This narrative underscores the critical importance of Level II ultrasound.This also highlights the important role of healthcare professionals in educating expectant mothers about its significance to prevent adverse maternal and foetal outcomes. While ultrasound technology is widely available and accessible, the failure to utilize it due to lack of awareness or prioritization can have severe consequences.

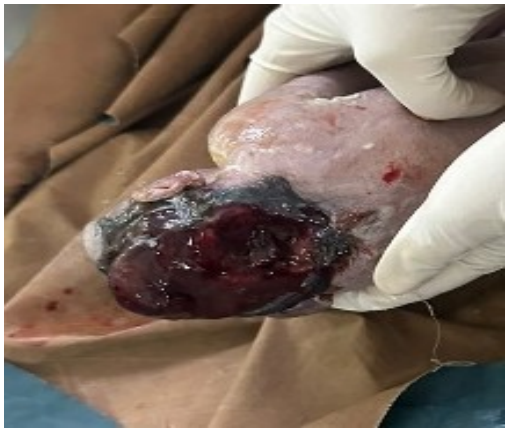

Figure 3&4. Anencephalic child with absence of major portions of the brain, skull, and scalp

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