ABSTRACT

Aim: To understand the reasons for rising cesarean section rates in tertiary hospitals.

Materials and methods: Analysis of emergency obstetric referrals was done during the period January 1, 2015 to December 31, 2017. Data only from those emergency duties done by the corresponding author were included to avoid subjective variation. A total of 86 emergency duties, which included duties on working days, weekends, and public holidays, were done. A total of 309 deliveries were conducted during emergency duty hours, and a total of 107 emergency referrals were received from other hospitals/practitioners.

Results: It is very difficult to substantiate the reasons for referral for many reasons; many cases are referred without a proper referral letter or they are referred over phone. The severity of the condition for which the patient is referred is usually much more than what is mentioned by the referral doctor and by what is determined on initial assessment at the tertiary center. This could be due to time lost and worsening of the situation, during transit.

Conclusion: While managing an emergency obstetric referral, an obstetrician in a tertiary center must evaluate the case with a certain degree of suspicion and should have a lower threshold for operative intervention. This is mainly because there might be incomplete information and worsening of the condition due to delays, which is usually underestimated. Blood products are a precious commodity and are in limited stock, and the investigations take some time to become available to the obstetrician.

Clinical significance: Obstetricians in tertiary institutions are privileged because they get an opportunity to manage less common complications, and hone their skills. However, their responsibility should extend beyond patient care and they must communicate to the referring doctor about lapses and convince them to refer much earlier with detailed notes.

Keywords: Audit, Cesarean section, Emergency referral, Lower segment cesarean section.

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INTRODUCTION

Amid raging debate about the alarming rise in cesarean section rates in our country, it would be interesting and insightful to know the audit reports of deliveries from various hospitals. Deliveries in our country are conducted in primary health centers, district hospitals, nursing and maternity homes, and in tertiary centers—some of which are also teaching hospitals. Not all health care facilities have an in-house blood bank, intensive care unit (ICU), neonatal ICU (NICU), or a 24 × 7 operation theater, and anesthetists and pediatricians are usually available only on-call. Therefore, it is not unusual for obstetricians practicing in the peripheries and in small setups to refer patients to a higher center, in a state of acute emergency. When patients are referred to a higher center in view of threatened preterm labor or anticipated blood loss (e.g., placenta previa), for the want of NICU and blood banking facilities, the outcomes should, at least theoretically, not be different from similar cases booked at tertiary centers, from the beginning of pregnancy itself.

With better understanding of medicine and greater penetration of health care services into the interiors, the number of referrals has definitely come down. However, tertiary centers continue to receive a substantial number of last-minute referrals even today, which in many cases are unavoidable. Despite better facilities being available—both in peripheries and in tertiary centers—the outcomes in such cases continue to be less favorable compared with those cases booked from the very beginning at tertiary centers.

DIFFICULTIES IN PERFORMING AN AUDIT

In tertiary centers, there is either a unit system or consultant on duty system, with a different unit and consultant being on duty, each day, by rotation. The same referred emergency condition can be managed differently depending on the unit and consultant on duty, since there is an element of subjectivity in assessment. Those cases where conservative/ expectant management is the rule (e.g., threatened preterm), the patient may remain...
in labor ward for several days, with a different unit and consultant being on duty in each shift, and the patient may eventually deliver at a time when a unit other than the admitting/parent unit is on duty. Even in those cases where prompt cesarean section is the rule—e.g., bleeding placenta previa, breech, or transverse lie in labor—the consultant on duty might be tempted to postpone the cesarean section till morning hours if the bleeding is minimal or has stopped, or if preterm labor pains subside. Such a decision can be due to heavy workload during the shift or because the consultant might feel more assured when senior colleagues are around. Even when there are fixed protocols in the department—e.g., when to do an artificial rupture of membrane (ARM), when to start and how to titrate oxytocin, intrapartum monitoring, induction of labor—there can still be a lot of subjective variation among consultants and units. One of the commonest reasons for difference of opinion among units is regarding the “correct” interpretation of cardiotocography (CTG) and what constitutes true fetal distress; in other words, how long can we wait. Many of the younger consultants are not very well versed with instrumental deliveries and are more confident with cesarean section even in difficult situations. Also, there is a perception that some obstetricians are strongly in favor of vaginal delivery, with cesarean being reserved only for what constitutes unavoidable indications. And some obstetricians are more than willing to rush every patient for a cesarean section. Thus, except for history obtained from patients and their relatives, we often have no record of events.

The fourth commonest reason for referral is a Memo- randum of Understanding, which certain hospitals have with our institute. We are duty bound to accept such cases. They were not intended to be referred to our institute, the commonest reason being lack of ICU and/or NICU beds in the hospital where they were referred to. Some patients would have approached more than one hospital before finally getting accepted at our institute. We have also had patients referred by obstetricians to whom the patient was referred to by another obstetrician. The patients were then referred to us when the obstetrician to whom the patients were referred to found the case far more complicated than anticipated.

Thirdly, some referred cases come to our institution on their own accord. They were not intended to be referred to our institute, the commonest reason being lack of ICU and/or NICU beds in the hospital where they were referred to. Some patients would have approached more than one hospital before finally getting accepted at our institute. We have also had patients referred by obstetricians to whom the patient was referred to by another obstetrician. The patients were then referred to us when the obstetrician to whom the patients were referred to found the case far more complicated than anticipated.

Fourthly, many cases are referred over the mobile phone, with no records to suggest that the patient was a referred case. This usually happens when a consultant gets referrals from friends.

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OUR EXPERIENCE

Analysis of emergency obstetric referrals, between January 1, 2015 and December 31, 2017, at our institute shows that factors that determine referrals are difficult to substantiate. Reasons could be cost factor, convenience, willingness of the tertiary center to accept unbooked/outside booked cases, and the satisfaction of the referring obstetrician following a previous referral. Also, some reasons for referral are season-specific like dengue. We have even observed sudden stoppage of getting referrals from a particular nursing home for unknown reasons, despite all previous referred cases from there being discharged with good outcomes. The major roadblock to determine the reasons for referral are many.

Most cases are sent without a proper referral letter without any details of treatment given or investigation reports. There is usually no phone number of the referring doctor for on-the-spot clarification. The severity of the condition sometimes turns out to be more than what was determined from initial assessment. For example, a lady referred for severe preeclampsia may be in full-blown disseminated intravascular coagulopathy (DIC), which is confirmed after coagulation profile report becomes available.

Secondly, many cases are referred over the mobile phone, with no records to suggest that the patient was a referred case. This usually happens when a consultant gets referrals from friends.

Thirdly, some referred cases come to our institution on their own accord. They were not intended to be referred to our institute, the commonest reason being lack of ICU and/or NICU beds in the hospital where they were referred to. Some patients would have approached more than one hospital before finally getting accepted at our institute. We have also had patients referred by obstetricians to whom the patient was referred to by another obstetrician. The patients were then referred to us when the obstetrician to whom the patients were referred to found the case far more complicated than anticipated.

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The most common reason for referral, constituting nearly 60% of all referrals, is for threatened preterm labor, with nearly one-third of such cases being preterm premature rupture of membrane. Majority of them are primiparous. Nearly one-fifth are in vitro fertilization (IVF) conceptions, and almost all IVF conceptions have a cervical stitch in situ.

The second most common reason for emergency referral is severe preeclampsia. Most patients have at least one of the following: Very high blood pressure, premonitory symptoms, deranged liver function test (LFT), thrombocytopenia, or abnormal Doppler suggestive of asymmetric intraterine growth rate (IUGR). Eclampsia, abruptio, and intrauterine demise are less common. However, some patients referred for preeclampsia have developed eclampsia during transit or after admission in our hospital.

The third most common reason for emergency referral is fever with thrombocytopenia. Most patients were away from term and not in labor. In two-thirds of the cases, no cause for fever is found. Dengue is the most common known cause and majority of patients did not require platelet transfusions.

The fourth commonest reason for referral is a Memo- randum of Understanding, which certain hospitals have with our institute. We are duty bound to accept such cases. Nearly half of cases coming from these hospitals do not have any emergency condition, but only some of them are referred during routine outpatient department hours. Such referrals are more common during weekends, prior to and during public holidays.

Jaundice in pregnancy constitutes another major reason for referrals. Almost all patients have deranged LFT and pro-
longed bleeding times. Most maternal deaths in our institute, more than 24 hours after admission, were due to fulminant hepatic failure, secondary to jaundice in pregnancy. On the contrary, maternal deaths less than 24 hours of admission were cases which came in gasping state. All of them either had profuse postpartum bleeding or were known cases of heart disease with cardiac failure.

Some patients are referred following cesarean section. The most common reason for referral is fever and sepsis. Emergency referrals for severe anemia in pregnancy and acute abdomen (usually due to ectopic pregnancy or ovarian torsion) are much less common at our institute. Therefore, there are bound to be a lot of loopholes while trying to analyze referred cases retrospectively from hospital records. However, we can conclude that while managing such cases one should have a lower threshold for operative intervention.

The reasons for such an observation are:

- Many patients of pregnancy-induced hypertension (PIH) and abruptio placentae might be in early DIC. Coagulation profile becomes deranged only when levels of clotting factors reduce by more than 50%. A patient with a normal coagulation profile can well be having mild to moderate reduction in levels of various clotting factors.\(^1\)^\(^2\)

- Many laboring women remain hemodynamically stable till delivery. It is the period following delivery, when there is a fluid shift from gravid uterus to vascular compartment that most patients deteriorate; even small amount of blood loss can cause profound deterioration.

- With cases of previous lower segment cesarean section (LSCS), there is usually no information about the indication of LSCS or nature of previous uterine scar in the referral notes—was there an extension, was it a J- or inverted T-shaped scar, or was a classical cesarean section performed previously. Those women who have had one previous LSCS should not be considered for vaginal birth after cesarean if there had been an extension of the scar, or if a J-shaped or an inverted T-shaped scar or if a classical cesarean section was performed previously.

- Possibility of uterine malformations is rare but cannot be ruled out if there is no reliable first trimester ultrasound scan. Uterine malformations should be suspected when there is an unusual lie and if there is nonprogress for no apparent reason. Women with unicorneate uterus and septate uterus are more likely to require a cesarean section for their uterine anomaly than women with bicornuate uterus.\(^3\)

- Lesser degrees of IUGR in fetus cannot be appreciated without serial ultrasound scans. When patients are referred in emergency detecting mild IUGR depends on the availability of emergency Doppler,\(^4\) which may not be available.

- Meconium-stained liquor is commonly associated with IUGR, prolonged labor, multiple attempts at induction of labor, oligohydramnios, post-datism, and it can only be detected by ARM (in usual settings), and ARM is possible only through a dilated cervix when presenting part is fixed. When there is an equivocal nonstress testing or a nonreassuring CTG, possibility of the fetus having passed meconium should be considered as one of the possibilities.\(^5\) However, no fetal heart rate pattern can correctly predict the presence of meconium if the fetus has aspirated meconium.

- Blood products for certain blood groups—Rh negative, AB, etc., are less easily available even in well-stocked blood banks. It is better to operate when patient is stable and the anticipated blood loss is going to be less. The length of trial has to be individualized. In other words, it is better to operate when the patient is in reversible shock than when in a decompensated state with multiorgan failure.

- The shifting times from labor room to operation theater and time required for induction of anesthesia are often underestimated.

An obstetrician might be reluctant to take a patient for cesarean section in second stage of labor, hoping that vaginal delivery is still possible. Injudicious use of forceps or vacuum can lead to a situation of “successful vaginal delivery with catastrophic results.” The suboptimal outcomes are generally ascribed to the fact that the patient was an emergency referral and had arrived in a compromised condition.

Another fact which younger obstetricians should keep in mind is that though vaginal delivery is preferred for women with cardiopulmonary conditions, PIH, coagulopathy, acute fatty liver of pregnancy, HELLP (hemolysis, elevated liver enzyme levels, and low platelet levels) syndrome, jaundice, obesity, etc., a neat and clean cesarean is preferred to a difficult vaginal delivery. We have come across a case of a 150 kg term patient who was referred in latent labor for emergency LSCS. She was given a trial, since obesity per se is not an indication for LSCS.\(^6\) The patient had difficulty in breathing and bearing down due to her weight. She was shifted for LSCS when instrumental delivery failed. The baby could be delivered only after the uterine and abdominal incisions were converted to an inverted T incision and another assistant was called to push the fetal head from below. The patient eventually developed full-length wound gape. Therefore, we should exercise our judgment to predict whether the patient will have a safe vaginal delivery or not. And if chances of safe vaginal delivery are low, then it would be sensible to take the patient for an emergency LSCS immediately than after a prolonged trial, when tissues are more likely to bleed. One should not take a patient for LSCS only if the patient can fit into a classical textbook indication for...
cesarean section. And we should never be proud of our high rate of successful vaginal deliveries, and make promises of vaginal delivery to our patients since the success of vaginal delivery depends on type of cases and one can never be sure of the exact nature in an emergency referral. No argument can justify a vaginal delivery if the baby is viable with no anomalies, but delivered in an asphyxiated state; or if the mother suffers traumatic postpartum hemorrhage (PPH) irrespective of the baby’s condition.

It has been the corresponding author’s experience during the period between January 1, 2015 and December 31, 2017, 86 emergency duties were done, which include duties on working days, weekends, and public holidays. A total of 309 deliveries were conducted during emergency duty hours. A total of 107 emergency referrals were received from other hospitals/practitioners. What stands out is the following procedures that had to be performed during the duty hours of the corresponding author. Some of these patients were admitted during the previous emergency duty shifts.

- Obstetric hysterectomy was done in two patients. One was a case of jaundice in pregnancy that was admitted and induced 2 days before in view of deteriorating LFT. She was referred with a serum bilirubin level of 14 mg/dL. She was taken up for LSCS during the corresponding authors shift for nonprogress of labor. The patient developed atonic PPH and hysterectomy was performed as a last ditch effort. Though the baby was born in good health, the patient died of fulminant hepatic failure 2 weeks later. The second case was that of term twin gestation in labor. The patient progressed well, but had to be taken up for LSCS in second stage for fetal distress. The first twin had cord around neck and hysterectomy was done for atonic PPH, when all other measures failed. The mother and both twins went home in good health.

- Internal iliac artery ligation had to be done in seven cases for control of PPH (Fig. 1).

- Though many patients with previous LSCS underwent emergency LSCS for scar tenderness, and a thinned out scar was found in all of them, three patients just had a serosal layer preventing a complete rupture of the uterus (Fig. 2). None of these patients had pronounced tachycardia or severe scar tenderness. It is our experience that classical signs and symptoms of impending scar dehiscence are not as common as mentioned in textbooks. Most patients with thinned out scar are not as symptomatic as one would like them to be and silent scar dehiscence is much more common than expected.7,8

- Lower segment cesarean section had to be done for the delivery of second twin after the first twin was born vaginally in one case, in view of fetal distress in second twin. The second twin had not delivered even after an interval of more than 30 minutes following the delivery of first twin.

- One patient who was taken up for LSCS in view of nonprogress of labor had a unicornuate uterus with rudimentary noncommunication horn (Fig. 3). This
was a surprise on table finding. The first trimester scan done by the referring obstetrician had not detected this finding.

- One patient who was taken up for emergency LSCS in view of fetal distress had a baby with a true knot of the cord (Fig. 4). This patient was referred without any recent ultrasound scan reports.

- One patient who was referred with an intrauterine fetal demise was taken up for emergency LSCS in view of failed induction. She had come in emergency three days earlier. On table, a macerated fetus with a necrotic scalp was extracted. Contents of skull were liquefied. This explained why the cervix was poorly applied to the presenting part and why the cervix had not dilated beyond 2 cm (Fig. 5).

- One patient was referred in view of previous LSCS with severe anemia was taken up for emergency LSCS immediately on admission. She had a hematoma in the broad ligament, the angle of the scar had given away, but there was no complete rupture (Fig. 6).

- Among 10 patients referred with post-LSCS delivery and referred in view of puerperal sepsis, one patient had burst abdomen, with intestines seen protruding through the wound. This patient was taken for surgery immediately (Fig. 7). Three patients had to be taken up for exploratory laparotomy later when the diagnosis pelvic abscess was confirmed (Fig. 8).

- One patient was referred with placenta accreta detected following emergency LSCS. The patient had a uterine pack in situ. She was also taken for emergency hysterectomy; however, manual removal of placenta...
was possible without much difficulty, and there was no PPH. It was possible to save the uterus.

- One referred patient who was a case of previous LSCS was taken for emergency LSCS in view of scar tenderness. Surprisingly, the entire anterior surface of the uterus was densely adherent to the anterior abdominal wall. After incision of the rectus sheath, it was impossible to identify the rectus muscle, peritoneum, and the anterior uterine surface because they had become fused into one layer. The bulb of the Foley’s catheter was identified, which served as a landmark for identifying the bladder. The incision was taken well above this point and the baby was delivered quickly. There were two loops of cord around the neck. A window was made in the peritoneum quite lateral to the now (Fig. 9), postpartum uterus and the fundus had to be quickly freed from the anterior abdominal wall (Fig. 10). After this was accomplished in a matter of 2 to 3 minutes, the uterus was exteriorized and closed (Fig. 11).

- There were two cases of shoulder dystocia. Both happened in nonobese, nondiabetic mothers with nonmacrosomic fetuses. In both cases, the babies were delivered by releasing the posterior arm.

- Given the total number of emergency referrals encountered by the corresponding author, the number of emergency life-saving/expedient procedures is much higher than expected. And therefore, given the high incidence of “near misses,” it would be prudent for the consultant on duty in the tertiary institute to view every referred patient in emergency with a certain degree of suspicion, and assume that the information provided in the referral notes is not complete. One has
to give a certain margin for the time lost in transit, and for subjective variation in assessment. This is not to blame the referring doctors, but one has to be vigilant and be prepared to for uncommon complications.

CONCLUSION

Obstetricians in tertiary institutions are privileged because they get an opportunity to observe and learn to manage less common complications, and hone their surgical skills. However, their responsibility should extend beyond patient care and they must communicate to the referring doctor about lapses and convince them to refer much earlier with detailed notes. Most doctors are reluctant to refer mainly because:

- They fear loss of practice
- Their patients may hear comments being made about them at the tertiary center
- Patients themselves would have refused to heed their advice for the fear of increased expenses.

It is necessary for doctors in tertiary centers to refrain from making loose comments in the presence of patients and reassure the referring doctor that the best possible treatment will be given. After discharge, they must insist that the patient go back to the referring doctor for future follow-up. This is an essential confidence building measure. It is also essential that institutes build a referral chain and network with smaller hospitals, dispensaries, and clinics. This will go a long way in training our future obstetricians and improve mother and child care.

REFERENCES