Europasian Journal of Medical Sciences
EJMS

Case Report

A Potential Maternal Fatality Averted: The Case of a Young Patient who Underwent a Peripartum Hysterectomy at a District Hospital

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ABSTRACT

The case reported here represents a 22-year-old gravida-two woman who lived in a relatively more accessible hill metropolitan in Nepal. It was determined to be a potentially fatal case, and a peripartum hysterectomy was performed on her. The potential fatality was averted due to readily availability of an obstetrician/gynecologist, an anesthesiologist, blood transfusion facility, nurses and other support staff. The case underscores that postpartum hemorrhage could happen to any pregnant woman without any identifiable risk factor, and second, averting a potential maternal death requires the whole health system to function effectively.

Keywords postpartum hemorrhage, peripartum hysterectomy, maternal death, health system, Nepal

THE CONTEXT

The case reported here occurred at a public hospital in Lamjung. Lamjung is a district in the Hill ecological belt of Nepal. It lies in Gandaki Province, which is one of the relatively better-off of the seven provinces in Nepal.[1] In 2021, the province had a maternal mortality ratio (MMR) of 161 per 100,000 live births.[2] Besishahar is the district's headquarters, an urban municipality with 38,000 people (or 24% of the district's total population).[3] The 2021 census recorded Lamjung's total population as 156,000 (82,000 females of reproductive age, 15–49).[3] It recorded 1,311 live births in 2021 in the district. The two largest ethnic populations are: Gurung (29%) and Chhetri (16%).[3]

The district has one government hospital, two Primary Healthcare Centers (PHCs), 57 Health Posts (HPs), and 38 Birthing Centers (BCs). There is one private hospital and several (approximately 10) pharmacies in the metropolitan area of the district. The public district hospital is located in Besishahar. From Besishahar, it takes about seven hours by public transport to reach Kathmandu, the federal capital, and four hours to reach Pokhara, the second-largest city in the country.

The district hospital has a total of 50 beds, with 17 beds designated as the maternity block. This particular block is led by one gynecologist, five staff nurses, and five Auxiliary Nurse Midwives (ANMs), all of whom are also trained as Skilled Birth Attendants (SBAs). In addition, one SBA-trained ANM is allocated for antenatal care (ANC) in the outpatient department and one ANM for immunization services.

Aside from the maternal, newborn, and child health services, the hospital has a physician, an anesthesiologist, an orthopedic surgeon, a dental surgeon, 15 medical officers, nine ANMs, a nursing officer (matron), and 28 staff nurses, all under the supervision of a medical superintendent. As per the government guidelines,[4] a 50-bed hospital is expected to have a general surgeon, a pediatrician, a general physician (MDGP), and a radiologist. All these positions have remained vacant for several months at the hospital, however.

The district hospital manages about 1,000 deliveries annually, implying that about 75% of the total deliveries in the district take place at the hospital annually. During the six-month period, July 2023 to January 2024, 562 babies were born to 561 mothers (with one twin). Of the total deliveries, three were perinatal deaths; 14 mothers were postpartum hemorrhage (PPH) cases who required blood transfusion. The case discussed below is one of the 14 cases.

PATIENT'S PROFILE

The patient was 22-years-old, gravida-two, para-one, and residing in a nearby town. She had a 3-year-old male child, a full-term normal delivery at the hospital. She belonged to the Chhetri ethnic group and was married to a 26-year-old person. Both of them had studied up to grade 10. She was a housewife, and her husband has been a migrant worker.

The patient's pregnancy was monitored at a nearby government Health Post since two months of gestation. Her last menstrual period was on February 5, 2023; her previous menstrual cycle was regular (30±5 days). She had confirmed her pregnancy through a urine pregnancy test at a nearby Health Post. According to her last menstrual period, her expected date of delivery was November 12, 2023.

After 12 weeks of gestation, she was referred for her first ultrasound scan at the district hospital. Her antenatal investigations were all within normal range, and she was prescribed iron tablets and calcium tablets from the second trimester onwards. At 24 weeks of gestation, she had received a booster dose of tetanus toxoid injection (TTI) at a nearby HP.

Her antenatal period was uneventful, and she had a total of six visits. The patient had no history of any complications during her antenatal, intranatal, or postnatal periods for both mother and baby during her past pregnancy. There was no history of chronic illness suggestive of diabetes mellitus, hypertension, thyroid disorder, bleeding disorder, or any cardiac diseases, and also no history of any surgeries in the past.

CLINICAL ASSESSMENT AND PERIPARTUM HYSTERECTOMY

On November 17, 2023, the patient visited the district hospital for her postdated pregnancy (40 weeks and 5 days), as per the advice of a nearby Health Post staff who had been her primary contact point. This was her second visit to the hospital. Her fetal movements were normal, and there was no history of labor pain, per-vaginal leaking, or bleeding. She was advised for routine investigations and an ultrasonography; all the results were determined to be within the normal range. She and her husband were counseled for admission; the pros and cons of induction of labor were discussed. She was admitted on the same day.

After arranging for blood grouping and cross-matching (there is no facility for a blood bank at the district hospital), she was induced with two doses of misoprostol (25 mcg, 6 hours apart). Prior to the induction, her Bishop score was 5. Six hours after the 2nd dose of misoprostol, she was in the latent phase of labor with a Bishop score of 7. Two hours following the artificial rupture of membrane (ARM), she experienced 2 mild contractions lasting for 20 seconds only. Because of this, oxytocin was started in an escalating dose. Following 5.5 hours of oxytocin augmentation, she delivered a 2,300-gram male baby with the Appearance, Pulse, Grimace, Activity, and Respiration (APGAR) score of 8/10, 9/10. It was a vaginal delivery with a 1st degree tear.

After the delivery, an active management of the third stage of labor was conducted with oxytocin (10 units intramuscular stat), controlled cord traction (CCT), and uterine massage, but continuous per-vaginal bleeding was noted. Uterine cavity and vaginal toileting were conducted, uterine massage was continued, and indwelling urinary catheter was kept in situ. misoprostol (800 micrograms in tablets) was administered per rectal, and oxytocin (20 units in intravenous fluid) was started (at 40 drops/minute). Injection tranexamic acid 1 gram intravenous was administered, and additional 1 gram was repeated after 30 minutes.

The uterus was still not fully contracted, and per-vaginal bleeding continued. Exploration of the genital tract was performed; cervical and vaginal laceration were ruled out at the delivery table, but the bleeding continued from the uterine cavity via the cervical canal. Her vitals were stable (BP: 110/70 mm of Hg, PR: 78 bpm), and blood loss was around 700–800 milliliters.

The patient's spouse was counseled for condom tamponade (in our experience, condom tamponade had controlled such bleeding in seven cases in the last five months at the hospital). Condom tamponade was kept and vaginal packing (with two sanitary pads) was administered, but the pads were fully soaked within five minutes. The condom tamponade was removed and replaced, but despite that, per-vaginal bleeding continued.

The patient's husband was counseled for exploration under anesthesia in the operating theater (OT) and explained that she may even need a hysterectomy if bleeding could not be controlled with conservative measures. Upon further exploration at the OT, the cervix and vagina were found intact, the uterus was flabby, and bleeding was coming through the uterine cavity via the cervix. By then, around 1.5 liters of blood had been lost. The patient was clinically pale and in shock. Fluid resuscitation was being administered.

The patient's spouse was appraised of the deteriorating status of the patient and the option of taking the patient to Pokhara on an ambulance (about four hours travel) was discussed also. The decision had to be made without much delay. In consideration of various factors (logistics, finances, urgency, and travel time) and further consultation with the attending physician and other concerned staff and relatives, the patient's spouse made a decision to continue seeking care/treatment at the same hospital. Accordingly, a written consent for performing hysterectomy was obtained by the hospital. Three pints of fresh blood were arranged.

The OT team for the surgery comprised of six professional staff: an obstetrician/gynecologist, an anesthesiologist, an anesthesia assistant, a scrub nurse, a circular nurse, and a helper. For the team, it was a difficult decision as to whether to go for a conservative surgery (uterine/ovarian artery ligation, B-Lynch sutures) or go for a permanent surgical option—hysterectomy—since she was only 22-years-old and had one three-year-old child. Upon discussion among ourselves (there was no other specialist on-site to consult), we decided on a peripartum hysterectomy.

A two-pint blood transfusion and 1,500 ml of fluid were given at OT, and total blood loss was around 2 liters following placental delivery. Peripartum hysterectomy was completed without delay, and the patient was shifted to the postoperative ward.

After the operation, a third blood transfusion was administered. Nine hours after this, her hemoglobin reached 10.3 gm/dl (at the same level prior to the induction of labor). All her post-operative vitals were stable. Intravenous fluid was continued for 24 hours.

Breastfeeding started within 6 hours, and maternal feeding also resumed 12 hours postoperatively. Mobilization was encouraged after 24 hours post-op period. On post operative day 3, indwelling urinary catheter was removed. The patient was discharged, along with her baby, on the 7th day since her admission. All stitches were removed on the 8th post-operative day.

PATIENT FOLLOW-UP

The day before discharge of the patient, both she and her husband were counseled again, as both of them sounded a bit concerned about their sexual lives. She was counseled that hysterectomy is a permanent procedure and she will not be menstruating in the future; both of them were assured that the hysterectomy will not hamper their sexual life. They were also informed that both her ovaries have been left intact and that she will not undergo hormonal problems.

One month after the hysterectomy, the patient (together with her husband) had her first follow-up. She did not have any complications (i.e., clinically well, no discharge or bleeding, feeding baby well, and they had not resumed sexual relations). Both were considered mentally and physically in good condition.

The patient and her husband were followed up via phone call after 5 months. Both sounded happy and appreciated saving her life. They also informed me that the baby was being exclusively breastfed. She also informed me that, at the on post-operative month, they had gone to Kathmandu for an ultrasonography of the abdomen just to make sure that all was well, and they were happy to find out that all parameters were within the normal limit.

RECENT IMPROVEMENTS IN THE HOSPITAL SERVICES

In recent months, there have been three main changes or improvements in hospital services. Some of the changes have been subsequent to the case discussed above.

First, for many years, the hospital did not have an anesthesiologist; it had an anesthesia assistant. Because of this, only a limited number of surgeries were performed as general anesthesia could not be administered. Emergency OT services such as caesarean sections and appendectomy used to be provided occasionally with the help of an anesthesia assistant. Since July 2023, the hospital has been able to retain a full-time anesthesiologist. Major cases like cholecystectomy, abdominal and vaginal hysterectomy, laparotomy, and others have now been possible to do under general anesthesia. Also, epidural anesthesia has been started on a regular basis.

Second, following suggestions from the medical service providers and upon consultation with them, the hospital medical superintendent took the lead in consulting with the provincial and federal governments to help establish a blood bank and ICU at the hospital. The staff were sent for training, and new staff were added. Subsequently, a blood bank and ICU (5 beds with a cardiac monitor in each bed and 1 ventilator bed) have now been established as part of hospital services and under the supervision of the anesthesiologist.

Third, ultrasonography and anomaly scan services (for at least 2-3 times a month) have also started (under the coordination of the radiologist doctor). This has resulted in the availability of and access to ANC ultrasound services.

DISCUSSION

Our experience in managing and providing medical care and treatment for the patient discussed above lead us to draw some implications and point to major challenges.

First, it is important to note that the patient lived in a metropolitan area in the district. The physical accessibility and proximity to the hospital made it easier for her and her spouse to access the services at the hospital. She had a child before, so she was most probably more aware of the monitoring and management of the pregnancy. She had six ANC visits. Also, because both were educated, it proved to be easier to counsel them and make them understand. Had they lived in a remote area, it would have been more difficult to have timely access to services and interventions. Similarly, counseling could have been more challenging, especially since the case involved a hysterectomy at a fairly young age.

Second, because of the geographic proximity and availability of health facilities, the patient had visited a Health Post for her antenatal care and services previously; she was aware of the importance of periodic monitoring and seeking care as the pregnancy developed. At the same time, the patient did not have any indication of postpartum PPH-related problems; all her parameters seemed fine until she was placed on the delivery table. This reinforces the notion that most cases of PPH have no identifiable risk factors, and because of this, each pregnancy should be considered at risk for PPH complications.[5-8]

Third, because of the continuous bleeding, the decision to perform a peripartum hysterectomy had to be made without much delay. It was a difficult decision to make, but in consideration of atonic PPH, we decided it was the best option available. The decision was also difficult because no such surgeries had been performed at this particular hospital previously. (While weighing in and making a decision within the team, we were reminded about a similar case from a couple of years back, when such a surgery could not be performed at the hospital, and as such, the patient was referred out of the district but passed away *en route* before making it to Pokhara). In the present case, timely diagnosis and access to surgery most likely prevented the death due to hemorrhage. For a district with 1,311 total live births in 2011, two maternal deaths imply an MMR of 153 (per 100,00 live births).

Fourth, as noted earlier, prior to the admission for delivery, the patient had been informed of the possible need for blood, and the patient's husband was ready and willing (since he matched the blood group). However, they were not alerted and counseled about the possibility of a hysterectomy. This news certainly came as somewhat of a surprise to them while the patient was in the OT. In hindsight, it is probably better to mention this possibility early on. At the time of the counseling, we also informed them that there was no pediatrician available at the hospital for consultation. They accepted this reality, although they seemed to prefer to have one to consult with in the future.

Fifth, the potential fatality was averted due to a functioning OT with the on-site availability of an obstetrician/gynecologist, an anesthesiologist, a blood transfusion facility, and nurses and other support staff. If the peripartum hysterectomy could not be performed on her, she would have been referred out to a hospital in Pokhara, which would have taken four hours to reach. This could have a fatal outcome, especially because the ambulance service in Nepal does not typically include an emergency medical team.

The case underscores that saving a pregnant woman's life warrants a well-functioning system within the hospital. Surely having a qualified team of anesthesiologists, gynecologists, and nurses is important, but the equipment and facility should also be functioning well. It also warranted a supportive administrative and management system. These constitute various components of a health system, as defined by the WHO.[9] Last but not least, the importance of good counseling should not be undermined. Especially in the present case, the patient was in her early 20s, and both she and her husband required follow-up and counseling.

Notwithstanding the recent improvements, the hospital continues to face some challenges. First and foremost, the recruitment and retention of qualified doctors and other professionals continue to remain a big challenge for such a district hospital, which is not in a large urban area. Of the over 130 total hospital staff, only six are regular and permanent staff. Several key positions have remained vacant for several months. Vacancies for the posts of general physician and surgeon, pediatrician, and radiologist have been advertised several times, but without any applicants. The lack of interest is most likely related to job insecurity, especially for those on temporary contracts, low salary, no prospects of private practice (as the hospital policy does not allow the doctors to maintain a private practice), and

lack of incentives for those on contracts. Further, there is frequent change in the overall management of the hospital. For example, the medical superintendent has changed three times during a period of 11 months, resulting in instability in the overall management, governance, and implementation of programs. These factors determine the functioning of the system on a sustained basis, which also adversely affects the community's trust and confidence in the services being rendered.

We would also like to note that there are currently 38 birthing centers (BCs) in the district. In light of the fact that the vast majority (75%) of deliveries are taking place at the district hospital, most of the BCs may not be functioning, and even when there are providers, they may not have enough cases for them to continue to retain their skills through practice. This may be another area to look into in terms of making services cost-effective and functioning in the district. If most of the BCs are not functioning well and the patients prefer to bypass the BCs (due to various reasons), it may be time to revisit the criteria and concept of establishing BCs. We recognize that making a health delivery system function in a district is a major challenge, but it is also a reminder as to the reason for continued high maternal deaths in the district.

CONCLUSION

The case reported here represents a 22-year-old gravida-two woman who lived in a relatively more accessible hill metropolitan in Nepal. This was determined to be a potentially fatal case, and a peripartum hysterectomy was performed on her. The potential fatality was averted due to a functioning OT with the availability of an obstetrician/gynecologist, an anesthesiologist, a blood transfusion facility, and nurses and other support staff. In recent months there have also been improvements in the hospital maternal service delivery system.

This case underscores that PPH could happen to any pregnant woman without any identifiable risk factor, and second, averting a potential maternal death takes the whole health system to function effectively. The challenge is how to fill the vacancies for the key positions and maintain the newly improved and strengthened services on a sustained basis.

ABBREVIATIONS

ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
ARM	Artificial Rupture of Membrane
CCT	Controlled Cord Traction
PHC	Primary Healthcare Center
PNC	Postanatal Care
ICU	Intensive Care Unit
MMR	Maternal Mortality Rate
OT	Operation Theatre
PPH	Postpartum Hemorrhage
SBA	Skilled Birth Attendant

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Authors' Contributions GR was the attending physician; she prepared the first draft. Both the coauthors reviewed and approved the final version of the article.

Ethics Approval and Consent to Participate Informed consent was obtained from the patient, and the patient's identity was concealed. Consent for Publication Informed consent was obtained from the patient for publication of the case and any accompanying images.

Conflict of Interest None declared by the authors.

Funding Support No external funding was available.

Availability of Data and Materials The clinical data and complementary examinations are available from the corresponding author upon reasonable request.

Acknowledgements The team involved in the management and care/treatment of the patient at the OT discussed in this case report included: Goma Rimal (obstetrician/gynecologist), Shishir Khadka (anesthesiologist), Ram Krishna Khatri (anesthesia assistant), Shobha Shrestha (ANM/nurse), Resham Kumari Gurung (ANM/nurse), and Bimala Sapkota (helper). The team gratefully acknowledges the support provided by the medical superintendent and other administrative staff at the hospital. The authors thank Dr. Rajshree Jha for her mentorship over the years and for reviewing earlier drafts of this case report. We express our gratitude to her and Dr. Shyam Thapa for raising critical questions and helping us think through and articulate some of the implications discussed in the article.

Disclaimer The views expressed in the commentary are authors' own; they do not necessarily represent those of the hospital where authors are employed.

Received June 1,2024 **Accepted** July 4, 2024

