

COJOINED TWINS: SAFE TERMINATION OF PREGNANCY THROUGH DILATION AND EVACUATION AT LATER GESTATION: A CASE SERIES

Abraham Fessehaye Sium (MD)¹, Tesfaye Diress (MD)¹, Delayehu Bekele (MD, MPH)¹, Lemi Belay Tolu (MD)¹

ABSTRACT

BACKGROUND: Currently, there is limited evidence on termination of pregnancy for cojoined twin documented with only 33 cases reports to-date. This study aimed to describe the clinical and procedure characteristics of second trimester dilation and evacuation(D&E) for cojoined twins at later gestation.

METHODS: This retrospective case series was conducted at a tertiary-level hospital in Ethiopia from February 2023- July 2023. Women who had a cojoined twin pregnancy in later gestation (≥ 20 weeks) and underwent second trimester D&E were retrospectively studied through chart review. Clinical presentation, D&E procedural description, and procedure outcomes of the cases were analyzed.

RESULTS: Three women who had a cojoined twin in later gestation (≥ 20 weeks) and underwent second trimester D&E were identified. In two of the cases, a two- day cervical preparation with laminaria was used to prepare the cervix while overnight Foley catheter (1-day preparation) was used for similar purpose in the third case. A cervical dilation of 3 cm was achieved in all cases and was deemed adequate to proceed with the procedure by the managing physicians. Intra-operative ultrasound guidance was utilized in all the cases and there were no complications encountered.

CONCLUSION: Our case series underscores the importance of achieving adequate cervical preparation, utilization of intra-operative ultrasound guidance, and handling the procedure by the most experienced provider, in increasing the safety and effectiveness of D&E procedures for conjoined twin at later gestation.

KEYWORDS: cojoined twin, dilation and evacuation, D&E for conjoined twin, D&E for twin

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¹ Department of Obstetrics and Gynecology, St. Paul's Hospital Millennium Medical College Addis Ababa, Ethiopia

INTRODUCTION

Despite existence of significant limitation of epidemiological data, best estimates indicate up to 1% of monozygotic twins are conjoined twins¹. Early diagnosis and thorough prenatal obstetric counselling (safe termination pregnancy versus continuing the pregnancy, expectant management) is the recommended management approach^{2,3}. Some evidence show that 50-70% of patients with conjoined twin elect termination of pregnancy after comprehensive consultation⁴. However, there is limited evidence on termination of pregnancy for conjoined twin documented with only 33 cases reports to-date. Majority of the termination procedures in these reports were at ≥ 20 weeks through either labor induction or medication abortion or hysterotomy, with dilation and evacuation⁵. Our presents the first case series on dilation and evacuation procedure for conjoined twin at ≥ 20 weeks of gestation. We aimed to describe the clinical and procedure characteristics of second trimester dilation and evacuation(D&E) for conjoined twins at later gestation.

METHODS AND MATERIALS

We retrospectively studied three women with a diagnosis of conjoined twins at later gestation who were managed with a second trimester dilation and evacuation at St. Paul's Hospital Millennium Medical College, Ethiopia, Addis Ababa, from February 1, 2023 - July 24, 2023. Detailed anatomy scan with ultrasound was used to confirm the diagnosis in all the cases and it was performed by Maternal-fetal medicine (MFM) specialists. Counselling on safe termination as an option of management was also provided by the MFM unit. After patients consented for the D&E procedure, cervix was prepared adequately with combination of mechanical and medical methods. In this case series, we studied through chart review. Clinical presentation, D&E procedural description, and procedure outcomes of the cases were retrospectively analyzed through chart review. Formal ethical

clearance was obtained from IRB of St. Paul's Hospital Millennium Medical College for this case series. Obtaining informed consent from study subjects was waived by this Ethics committee.

RESULTS

We identified three women who had a conjoined twin in later gestation (≥ 20 weeks) and underwent second trimester D&E were identified. Their age ranged from 25-32 years and the gestational age was ≥ 20 weeks (with one case being at 23 weeks). Two of the cases were parous while the third was a primigravid case. The two of the conjoined twins were pyopagus, while the third case was omphalopagus (Table-1). In case 1 and case 2, a two-day cervical preparation with laminaria was used to prepare the cervix while overnight Foley catheter (1-day preparation) used for similar purpose in case 3. Additionally, all cases received misoprostol 400mcg and mifepristone 200 mg oral as part of the cervical preparation in all cases. A cervical dilation of 3 cm was achieved in all cases and was deemed adequate to proceed with the procedure by the physicians, family planning specialists, who attended the procedures. Spinal anesthesia was utilized for pain control in two cases while conscious sedation with morphine plus paracervical block was used for the same purpose in third case (case 3). In all the cases the D&E procedures were performed under intra-operative ultrasound guidance and no complication was encountered. The duration of the procedure was 30-50 minutes.

| Variable | Case 1 | Case 1 | Case 3 |
|---|-----------------------------------|-----------------------------------|--|
| Maternal age(years) | 25 | 32 | 25 |
| Gestational age (weeks) | 20 | 23 | 21 |
| Parity | Nulliparous | Para-1 | Para-3 |
| Type of cojoined twin | pyopagus | pyopagus | omphalopagus |
| Cervical preparation method | 2 days preparation with Laminaria | 2 days preparation with laminaria | one day overnight transcervical Foley catheter |
| Cervical dilation before procedure Anesthesia | 3 cm Spinal(bupivacaine) | 3cm Spinal(bupivacaine) | 3 cm Conscious sedation with morphine + paracervical block |
| Level of provided who attended the D&E | Family planning specialist | Family planning specialist | Family planning specialist |
| Procedure time(minutes) | 40 | 50 | 30 |
| Complication encountered | None | None | None |

Table-I Reproductive characteristics and D&E procedure characteristics and outcomes of conjoined twins, Ethiopia 2023

DISCUSSION

In the present series, 3 conjoined twin cases had a second trimester dilation and evacuation at gestational age of 20-23 weeks. When it comes to the types; 2 cases were pyopagus conjoined twin and the third case was an omphalopagus conjoined twin. Two days of cervical preparation with laminaria was used in two of the case while an overnight transcervical Foley catheter placement (one-day preparation) was utilized in the third case for a similar purpose. Adequate cervical preparation (3 cm as objectively measured by the attending physicians-family planning attendings) was declared before starting the procedures. All the procedures were performed under intra-operative ultrasound guidance with spinal anesthesia used as a mode of pain control in two of the case while conscious sedation was utilized in the third case.

Conjoined twin gestation is a rare event with a peculiar and complex obstetric management approach⁶. Management starts with early detection with thorough prenatal imaging including ultrasound, fetal echocardiogram and fetal MRI, which may be a useful adjunct to clarify fetal anatomy that is incompletely defined sonographically, as well as to enhance details regarding brain, abdominal, and thoracic structures. Based on findings of these imaginings, conjoined twins can be categorized into the proper anatomic subgroup according to the most prominent site of connection (thoracopagus, omphalopagus, parapagus, ischiopagus, pygopagus, and craniopagus)^{6,7}. Of conjoined twin types, thoracopagus is the most common one and also have the highest associated mortality rate due to the likelihood of shared vital cardiac structures^{8,9}. In the present series three of the cases had different types of conjoined twins, one was pypagus, one was omphalopagus, while the third one was craniopagus. For families faced with a conjoined twin diagnosis, obstetric counseling must explore the expectant parents' values while providing realistic and detailed expectations for the postnatal course. Options for pregnancy management including termination of pregnancy and expectant management should be

thoroughly reviewed^{2,3}. In our case series, both the women and their husbands were counselled about the prognosis their conditions and the available options of management of the conjoined twin safe termination versus continuing the pregnancy by maternal fetal medicine specialists and safe termination of pregnancy was preferred by the couples in all the cases.

All options of pregnancy termination, including dilation and evacuation (D&E) has been described in the literature, although few case have been reported on this so far^{10,11}. The option of termination depends on the site of connection (type of conjoined twin) and gestational age with the goal of minimizing maternal complications⁶. Induced termination at later gestation carries increased maternal risk, and the utility of induced fetal demise prior to the induction, as well as use of laminaria, mifepristone, and misoprostol with the purpose of promoting adequate cervical effacement and dilation should well considered before the procedure. Pre-procedure counseling for women undergoing such procedure should include potential risk for hemorrhage and need for hysterotomy or urgent D&E if such complication occurs. Although gestational age and clinician's experience will affect the availability of D&E as a safe option for conjoined twins in the later gestations (≥ 20 weeks), it is much preferred over hysterotomy, which has historically been employed for surgical termination including conjoined twins^{11,12}. Considering the availability of family planning specialists with ample second trimester D&E experience, including those at advanced gestation of 22-24 weeks and after discussing the benefits and risks of surgical versus medication abortion with the patients, D&E was the preferred method termination of pregnancy.

If D&E is selected as option of termination of pregnancy for such patients, assessment of fetal size, fetal presentation, fetal width, and fusion site to determine the extent of indicated cervical preparation (i.e., number of millimeters of laminaria) and use of adjuvant medications including

mifepristone or misoprostol should be made¹³. Taking into account the advanced gestational age of the cases and the type of the cojoined twins, a clear plan of achieving adequate cervical preparation was put before the procedures in our case. To attain this, a 2-day preparation with laminaria was required in 2 of the cases while one-day preparation with Foley sufficed in the third case on the top of administering mifepristone and misoprostol in all cases. Moreover, it has been suggested to utilize intra-operative ultrasound guidance during the procedure for safe passages of D&E instruments in and out of the uterine cavity⁵. This suggestion was well utilized in all the procedures in the present series, with assistant surgeons holding the ultrasound probe and scanning the uterus in the directions as desired by the handling surgeons. In summary, being the first case series on second trimester dilation and evacuation for cojoined twin at later gestation (≥ 20 weeks), our case series supports the previously reported suggestion of adequate cervical preparation, using intra-operative ultrasound guidance, and procedure attendance by the most experienced D&E provider, in order to have a safe termination of pregnancy with less complication through this procedure.

DECLARATION

Conflicts of Interest

The authors report no conflicts of interest.

Ethical Clearance

Formal ethical clearance was obtained from IRB of St. Paul's Hospital Millennium Medical College for this case series. The IRB waived the requirement for informed consent from participants.

Author contributions

AFS and LBT developed the concept and design of the project. AFS, LBT, TD, and DB contributed data collection and case analysis. AFS, DB, and LBT contributed manuscript write-up. All authors checked the manuscript for intellectual contents. The final manuscript is approved for submission by all authors.

Data Availability Statement

Data are available from authors up on reasonable request.

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CORRESPONDING AUTHOR

Abraham Fessehaye Sium (MD)

Department of Obstetrics and Gynecology Saint Paul's Hospital Millennium Medical College,
Email: abrahamfessehaye4@gmail.com

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