



SFM Fetal Therapy Practice Guidelines: Fetal Reduction

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Abstract

Keywords

- ▶ dichorionic
- ▶ fetal reduction
- ▶ monochorionic twin pairs
- ▶ multifetal reduction
- ▶ selective fetal reduction

The indications of fetal reduction can be multifetal reduction (MFR) or selective fetal reduction. In MFR, the objective is to reduce the number of fetuses, whereas in selective fetal reduction the abnormal fetus is targeted for reduction. Reduction in the monochorionic twin pairs resulted in the most favorable pregnancy outcome among triplets and should be recommended whenever fetal reduction is an option. Selective termination by potassium chloride injection is contraindicated with monochorionic gestations because death of the unaffected twin occurs in 80 to 100% of cases. The standard operating procedures discuss various aspects of fetal reduction in detail like indications, consent, procedural details, risks and complications, and follow-up. It also gives a report template that can be used in your clinical practice.

Indications

- *Multifetal reduction (MFR)*
 - Decrease fetal number in multiple pregnancy
 - Sometimes done in cases of placental insufficiency/cervical incompetence
 - Reduction to a single fetus is an acceptable option
- *Selective fetal reduction*
 - Discordant anomaly/aneuploidy/Mendelian disorders
 - Heterotopic implantation

Reduction in the monochorionic twin pairs results in the most favorable pregnancy outcome among triplets and should be recommended whenever a fetal reduction is an option.

Selective termination by potassium chloride injection is contraindicated with monochorionic gestations because the death of the unaffected twin occurs in 80 to 100% of cases.

Consent

F forms are to be filled out as per the PCPNDT Act. Besides this, a detailed consent form describing the procedure and its risks should also be filled and duly signed by the patient. Consent should include

1. Patient's health
2. Number of fetus
3. Risk of reduction versus no reduction
4. Potential medical, social, psychological, and economic risks specific to multiple pregnancy
5. Specific adverse events and their incidence
6. Other options including no intervention
7. Offer option of prenatal detection of aneuploidies, genetic disorders and structural anomalies

Maternal Risks

- Infection
- Psychological issues

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Fetal Risk

- Pregnancy loss rate
- Fetal loss rate
- Infection
- Prelabor rupture of membranes

Counseling Statement for Medical Records

- Expert to counsel; preferably a fetal medicine specialist
- Explain in a language/manner couple understands
- Nondirective patient counseling
- Explain risk specific to multiple pregnancies and pertaining to individual cases
- Option to continue or reduce
- Explain the procedure, indication, option of early versus 11 to 13 weeks, advantages/disadvantages of either
- Reduction in maternal risks like hypertension, diabetes mellitus, and postpartum hemorrhage
- Benefits (reduce early preterm birth and the associated long-term morbidity) versus risks of reduction
- Maternal and fetal risks of the procedure
- In *selective reduction*, counsel about the most current knowledge of the disease, its treatment options, impact of continuing this fetus with an abnormality on the co-twin
- *MFR*: Methods to detect aneuploidy, anomaly, and genetic disease available before reduction: Offer noninvasive versus invasive testing for aneuploidies in multi-fetal pregnancy reduction (MFPR); targeted first-trimester ultrasound and risk assessment for fetal aneuploidy by Nuchal translucency (NT) measurement are feasible in higher-order multiple gestations; chorionic villus sampling (CVS) has no impact on subsequent miscarriage rates, neither for reduced nor nonreduced cases.

Equipment and Devices Required

- High-end ultrasound machine
- Sterile swabs, betadine, sponge-holder and sterile sheet for cleaning and draping
- 10 mL syringe loaded with 1% lignocaine for giving local anesthesia
- 20 mL syringe loaded with sterile saline (to be used in place of jelly)
- Sterile probe sleeve
- 22-gauge CVS/lumbar puncture (LP) needle for puncturing fetal heart/thorax; length of needle decided on defining and measuring needle trajectory
- Injection KCl

Preoperative Checklist

- Detailed scan: number of fetuses, chorionicity, crown-rump length (CRL) of each fetus, NT, anomalies, mapping of twins
- Blood test reports (blood group and typing, infection screen)

- First-trimester screening results/CVS results (if done before the procedure)
- Anti-D administration in patients with an Rh-Negative blood group
- Informed and written consent
- Number of fetuses before reduction, the final number of fetuses to be reduced and to be continued

Preoperative Preparation of the Patient

- Ensure the patient passes urine
- Mild sedation (optional)
- Antibiotic (optional)

Operating Room Requirement

Any ultrasound room where routine invasive procedures are performed

Personnel Requirement

Assistant for helping in the procedure

Procedure Steps

- The patient laid in a supine position
- Parts cleaned and draped
- Review scan done with probe covered with a sterile sleeve
- Details of fetuses reviewed and abnormal fetus mapped
- Fetus for reduction selected: Following principles to be followed
 - Reduce the monochorionic pair in a dichorionic triplet with one monochorionic pair. Reduction in the monochorionic twin pairs results in the most favorable pregnancy outcome among triplets and should be recommended whenever fetal reduction is an option.
 - If anomaly or aneuploidy reduces abnormal fetus
 - For multifetal pregnancy reduction, choose the most easily accessible fetus and the one away from os for reduction
- Mark entry point and define needle trajectory under ultrasound guidance and estimate needle length
- Inject local anesthesia (1% Xylocaine) at the planned entry site
- Insert a CVS/LP needle of appropriate length into fetal heart or thorax of the targeted fetus
- Remove the stylet and inject about 2 mL KCl
- Observe for 5 minutes for the disappearance of cardiac activity and ensure the presence of cardiac activity in the remaining fetus/es before withdrawing the needle
- Keep a sterile swab on the abdomen on the site of needle insertion
- Display cardiac activity of remaining fetus/es to the couple

Postoperative Checklist

Proper documentation

Postoperative Monitoring of Mother and Fetus

- Enquire from the mother if any pain or discomfort, leaking or bleeding per vaginum
- Check fetuses for cardiac activity—absence confirmed in reduced fetus/es and cardiac activity confirmed in fetus/es to be continued

Postprocedure Advice

- Antibiotic course (optional)
- Continue any previously prescribed medication like folic acid, aspirin, and progesterone support
- Anti-D administration in Rh-negative women
- Tablet Paracetamol 500 mg SOS in case of pain
- Follow up after 1 week for confirmation of cardiac activity
- In case of leaking per vaginum, bleeding per vaginum, unhealthy discharge, fever or cramping pain abdomen report to the gynae-emergency immediately

Invasive Report Template

Name of center _____

Date _____

Name _____ Age _____

Husband name _____ Patient ID _____

Last menstrual period (LMP) _____

Expected date of delivery (EDD) _____

Conception (spontaneous/assisted) if assisted, details _____

Date and day of ET: _____

Procedure: _____

Indication: _____

USG: (date): No. of fetus/CA/chorionicity/NT) _____

Preprocedure CVS: Yes/No _____

If yes: Results _____

Period of gestation (in weeks) _____

Date of procedure _____

Preprocedure order of gestation (singleton/twin/multiple) if multiple, number of fetus _____

Cardiac activity before procedure (of each fetus): _____

Mapping of the fetus (diagram) _____

Postprocedure order of gestation _____

Cardiac activity postprocedure _____

Advice _____

Signature _____

Author's Contribution

S.G. conceived the article, prepared and formatted the manuscript, critically revised the manuscript, and approved the final version

Conflict of interest

None declared.

Suggested Reading

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