ROLE OF INSTRUMENTAL DELIVERIES IN MODERN OBSTETRICS

Bushra Tabassum
Post graduate
Dept of OBG
INTRODUCTION

- Obstetrics, as a science has undergone phenomenal development with a proper understanding of the entire process of pregnancy & childbirth.
- In view of the developments, the expectations of all concerned – including legal system has undergone a sea change so that a small mishap will be viewed seriously.
- In such a scenario, the practicing obstetrician of today is likely to have reservations about using instrumental labour management methods which have unpredictable course & outcome.
Hence today instrumental deliveries are becoming rarer and rarer. In the last two decades, not only very few developments have taken place in this field, many of the instrumental deliveries have become obsolete.

However in the present day concept of active management of labour, instrumental delivery still have their own place and should be considered in suitable cases, particularly in developing countries like India.
CLASSIFICATION OF FORCEPS APPLICATION

CLASSICAL (OLD) CLASSIFICATION:

- **Low/outlet forceps (no distinction):** forceps applied when the foetal head has reached the pelvic floor, sagittal suture has reached the A-P diameter of pelvis and scalp is visible without separating the vulva.

- **Mid forceps:** forceps applied when head is engaged but criteria for low forceps not reached.

- **High forceps:** forceps applied when head is not engaged.
CLASSIFICATION (ACOG)

According to Station and Rotation

Outlet forceps:

1. Scalp is visible at the introitus without separating the labia
2. Fetal skull has reached pelvic floor
3. Sagittal suture is in AP diameter or right or left occiput anterior or posterior
4. Fetal head is at or on perineum, and
5. Rotation does not exceed 45 degrees
Low forceps:
1. Leading point of fetal skull is a station 2 cm and not on the pelvic floor.
2. Rotation is 45 degrees or less, or
3. Rotation is greater than 45 degrees.

Midforceps:
1. Station is between 0 and 2 cm.

High:
1. Not included in classification
FORCEPS DESIGN

It consist of two crossing branches
Each branch has four components:
  - Blade
  - Shank
  - Lock
  - Handle
Each blade has two curves:
  - Cephalic
  - Pelvic
Some forceps are fenestrated or pseudofenestrated
INDICATIONS FOR FORCEPS

Delay in second stage: –

- Due to uterine inertia.

- Failure of progress of labour
  - if no progress occurs for more than 20 to 30 minutes, with the head on the perineum
Foetal indications: –

- Foetal distress in second stage.
  - Abnormal heart rate pattern
  - Passage of meconium
  - Abnormal scalp blood ph

- Cord prolapse in second stage.
- Aftercoming head of breech.
- Low birth weight Baby
- Post maturity.
Maternal indication: –
- Maternal distress
- Pre-eclampsia
- Post caesarian pregnancy
- Heart diseases
- Intra partum infection
- Neurological disorders where voluntary efforts are contraindicated or impossible
PREREQUISITES
(to be fulfilled before forceps application)

- Suitable presentation & position: –.
  - Vertex, anterior face or aftercoming head are the ideal positions.
- Cervix must be fully dilated.
- Membranes must be ruptured.
- Uterus should be contracting & relaxing.
- Bladder must be empty.
PRELIMINARIES
(before forceps application)

- **Documentation:**
  - Consent of the patient, indication for operation, anaesthesia, personnel involved, type of instrument, difficulties & remedies, resulting maternal & foetal complications or injuries and blood loss.

- **Anaesthesia:**
  - Pudendal block or Labio–perineal infiltration for outlet forceps.
  - Regional or General anaesthesia for low & mid forceps.
Catheterisation:

**Internal examination:**
To assess the state of cervix & membranes, presentation & position, pelvic outlet, Transverse diameter of the outlet & sub pubic angle.

**Episiotomy:**
Should be done after application of forceps.
TYPES OF APPLICATION
(of forceps blades)

- Cephalic application –.
  - Blades are applied along the sides of the head, grasping the BPD in between the blades and the long axis of the blades correspond to the occiputo–mental plane.

- Pelvic application: –.
  - Blades are applied on the lateral pelvic wall ignoring the position of the head.
TECHNIQUE OF FORCEPS DELIVERY

- In occipito– anterior position
  * The left blade is applied first. It is held by its handle with the left hand, which is passed along the left side of the maternal pelvis between the guiding palm of the right hand and foetal head.
  * As the blade passes into the birth canal the handle is carried backwards and towards the midline.
FORCEPS APPLICATION
The fingers of the left hand are introduced along the right side of the pelvis and the right blade is held and passed in the same manner.

The 2 blades should be locked easily, if not this means that they were not correctly applied and should be removed and re-assess the position of the head.
FORCEPS APPLICATION
Clinical checks for correct forceps application:

* The sagittal suture lies in the midline of the shanks.
* The operator cannot place more than a finger tip between the fenestration of the blade and the foetal head.
* The posterior fontanelle is not more than one finger– breadth above the plane of the shanks.
**TRACTION SHOULD BE:**

* gentle by the force of the arm only,
* intermittent with uterine contractions only,
* in correct direction i.e. downwards and backwards till the **occiput** appears at the **vulva**, then downwards and forwards.
* The 2 blades are unlocked between contractions to minimise the period of head compression.
DIRECTION OF TRACTION
DELIVERY OF THE HEAD
FORCEPS FOR AFTERCOMING HEAD

- Piper's forceps are specially designed for this purpose.
- Forceps to be applied when the occiput lies against the back of the symphysis.
- Blades to be applied from below after raising the legs.
- Traction to be maintained in an arc, which follows the axis of the birth canal.
Piper's forceps are specially designed for this purpose. Forceps to be applied when the occiput lies against the back of the symphysis. Blades to be applied from below after raising the legs. Traction to be maintained in an arc, which follows the axis of the birth canal.
VACCUM EXTRACTOR (VENTOUSE)

- Indicators & assessment are same as for forceps
- May cause less trauma
- Less need for analgesia
- Reduced requirement for training
- Fetal & neonatal morbidity potential almost same as for forceps delivery
Advantages of the vaccum extractor compared with forceps include:

- avoidance of insertion of space-occupying steel blades within the vagina,
- no requirement for precise positioning over the fetal head,
- less maternal trauma, and
- less intracranial pressure during traction.
RECOMMENDATIONS REGARDING VACUUM DELIVERY

- The classification of vacuum deliveries same as for forceps
- The same indications and contraindications as for forceps
- The vacuum should not be applied to an unengaged vertex, that is, above 0 station.
- Experienced operator
- The operator willing to abandon the procedure if the cup dislodges more than three times.
REASON FOR DECLINE OF FORCEPS

- Litigation has grown over the recent years
- Extreme care in patient selection
- Vacuum extractors offer a safer & better alternative
- Rotational delivery of > 45 degree usually abandoned
- Inappropriate training of residents
ADVANTAGES OF FORCEPS

COMPARED TO VACCUM EXTRACTOR

- More faster delivery of the fetus in distress
- Reduced failure rates
- Reduced need of sequential use of instrument
- Fewer cases of cephalhematoma & retinal hemorrhage
ADVANTAGES OF FORCEPS

COMPARED TO EMERGENCY LSCS

- Major obstetric hemorrhage less common
- Less admission to neonatal intensive care unit
- Shorter hospital stay
- Fewer readmissions
- Subsequent spontaneous delivery more likely
DISADVANTAGES OF FORCEPS DELIVERY

FORCEPS V/S VACCUM EXTRACTION

- Higher degree of maternal analgesia for forceps
- Maternal perineal trauma greater
- Facial bruising & facial N palsy more common
- Requires greater clinical skills
DISADVANTAGES OF FORCEPS DELIVERY

FORCEPS V/S EMERGENCY LSCS

- Trauma to baby less
- Maternal perineal trauma
- Dyspareunia
- Urinary & fecal incontinence all the above are less common following lower segment cesarean section.
COMPLICATIONS/DANGER

Maternal–

- **Injury**–
  - Extension of the episiotomy involving anus & rectum or vaginal vault.
  - Vaginal lacerations and cervical tears.

- **Post partum haemorrhage** –
  - Due to trauma, Atonic uterus or Anaesthesia
Shock –

- Due to blood loss, dehydration or prolonged labour.

Sepsis –

- Due to improper asepsis or devitalisation of local tissues.

Delayed or long-term sequel –

- Chronic low backache, genital prolapse & stress incontinence
Fetal–

- Asphyxia.
- Trauma–
  - Intracranial haemorrhage.
  - Cephalhaematoma.
  - Facial / Brachial palsy.
  - Injury to the soft tissues of face & forehead.
  - Skull fracture
- Remote–cerebral palsy.
- Foetal death–around 2%.
PROPHYLACTIC / ELECTIVE FORCEPS

- Introduced by Dee Lee (1920), refers to outlet forceps delivery, only to shorten the second stage of labour to prevent anticipated maternal or foetal complications in –
  - Eclampsia
  - Heart disease
  - Previous c.s.
  - Post maturity
  - Low birth wt babies
  - During epidural anaesthesia
Knowing that a certain degree of disproportion at mid pelvis may make the procedure incompatible, low/mid forceps delivery is attempted, abandoning it at the earliest in favour of Caesarean section.

So it should be done only in the O.T., keeping everything ready for C.S.
When a vigorous but unsuccessful attempt is made with the forceps, anticipating a successful forceps delivery.

Mostly it is due to lack of obstetric skill and poor clinical judgment.

Factors responsible are— Disproportion, Incomplete cervical dilatation & malposition of foetal head.
CONCLUSION

- Considering all aspects, forceps delivery has still got a place in modern obstetric practice and should be considered in certain cases.
- If performed judiciously by proper selection of cases and careful & timely application, forceps delivery can be useful in reducing not only unnecessary caesarean sections but also foetal & maternal complications due to prolonged labour.
TOWARDS SAFE MOTHERHOOD

THANK YOU!