

## THE VACUUM EXTRACTOR

(Study of 725 Cases)

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The Vacuum Extractor or Ventouse has established its place in obstetric practice.

Vaginal delivery is the natural and most desirable method, so long as the process does not affect either the baby or the mother. From the beginning of the 17th century until recently, the only instrument at our disposal was obstetric forceps. But the forceps has its limitations and drawbacks. It cannot be used before full dilatation of the cervix or with foetal head at a higher level in the pelvis and not rotated.

Malmstrom of Sweden devised in 1954 the modern Vacuum Extractor which is more physiological instrument. By describing this instrument as a physiological instrument it is intended to convey that although it is an instrumental delivery its effect on the mother and the baby is equal to that of a normal delivery. Vacuum Extractor has following advantages:

1. It is simple and light instrument and causes hardly any foetal or maternal injuries.
2. Application is very easy.
3. It can be used before full dilatation of cervix.

4. It can be used with foetal head high in the pelvic cavity.
5. It reduces the incidences of caesarean Section.
6. Can be done easily under pundenal block and without anaesthesia in multiparae.
7. It stimulates uterine contractions and promotes expulsive power.
8. It does not occupy any space in the pelvis.
9. It helps in rotation of head.
10. It has very low perinatal mortality.
11. Maternal injuries are minimal.
12. It can be applied to the buttocks in extended breech.

Since May, 1962 to June 1973 Vacuum Extractor was used in 725 cases. Total number of deliveries during that period was 18025. Forceps was applied in 159 cases, when there was severe foetal distress or vacuum slipped twice, or patient was very non-cooperative. Thus, incidence of vacuum extractor comes to 4.3% and forceps 0.9%.

This is a private maternity home and hence primiparas are more than multiparas. There were 594 primiparae and 131 multiparae in this series.

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## Indications

1. Prolonged 2nd stage	—	324
2. Deep transverse arrest	—	43
3. P. occipito posterior	—	38
4. Pre-eclampsia	—	134
5. Essential hypertension	—	16
6. Elderly Primiparae	—	9
7. Postcaesarean	—	19
8. Uterine Inertia	—	142

725

Indications for application of Vacuum Extractor and forceps were more or less the same. Majority of cases were of prolonged 2nd stage of labour, where the second stage lasted for more than 2 hours in primipara and 1 hour in multipara.

There were 324 cases of prolonged 2nd stage. In 142 cases uterine inertia was responsible as presentation, position and pelvis were normal. In these cases glucose with 2 units of syntocin at the rate of 30-40 drops/mnt. was started before application of vacuum extractor.

In 143 cases it was applied for deep transverse arrest and in 38 cases for persistent occipito posterior position where the head was above the level of ischial spines. Ventouse was very helpful in rotation, decent and delivery of the head.

Vacuum was also used to shorten the 2nd stage. In twin delivery it was used in 4 cases for delivery of the 2nd baby. In 9 cases of elderly primipara between 35-40 years, it was used to shorten the 2nd stage. It was also used in 19 cases of postcaesarean to shorten the 2nd stage.

In majority of cases the cervix was fully dilated. In 4 cases it was 3/4 dilated. Station of the head was at the level of ischial spines in 438 cases, above the level of ischial spines in 134 cases and below the ischial spines in 153 cases.

Most of the patients were given pudendal block. When the head was low down

only local infiltration of the perineum was done.

*Maternal Injury*

There were no Maternal complications except extension of episiotomy wound in 38 cases where delivery of the head was sudden.

*Foetal Injury*

Birth weight of the babies in this series varied from 4½ to 9½ lbs. Average was 6½ lbs. There were no lacerations or avulsions of the foetal scalp. There was slight redness of scalp in 23 cases where station of the head was high and it took longer time for the delivery of the head. Furacin ointment was applied for 3-4 days and the redness disappeared completely. The artificial caput disappeared within 12-24 hours in all cases. Only 2 cases got haematoma of the scalp and neck which disappeared after 6 days.

*Failed Vacuum Extractions*

Vacuum extraction should not fail in properly selected cases. Failure is found when head is at the brim or has just entered the brim without rotation and uterine contractions are weak. Another factor for failure is wrong technique of not giving sufficient time for formation of artificial caput. Also pull should be applied during uterine contractions in proper direction, according to the level of the head in the pelvis. If uterine contractions are weak, then I.V. pitocin drip is very helpful during vacuum extraction when the head is high.

Leakage in the instrument also is one of the factors causing failure. In our series ventuouse slipped once in 24 cases. It was reapplied with success. In 12 cases it slipped twice and baby was delivered by forceps. Thus, failure rate in our series

comes to 3.4%. In no case we had to do caesarean section for failure of vacuum.

#### *Follow-up of Babies*

Out of 725 deliveries by vacuum extraction we have been able to follow up 378 babies. Seventy-eight mothers came for 2nd delivery and it was very easy to know about the first child. These babies had normal milestones and no alopecia. About 38 children have joined school and have no mental defect.

#### *Comments*

Vacuum Extractor was designed to make operative obstetrics safer. Under similar conditions where vacuum extractor and forceps are both applicable, the vacuum extractor is found superior to forceps, particularly in delivery with incompletely dilated cervix and also in breech cases. In forceps, the lacerations of vagina and extension of episiotomy wound either to the vault or to the anus is more common.

With vacuum extractor there is no encroachment on the diameters of the birth canal by the instrument, so all available space is used for the passage of the foetus. It also promotes flexion and spontaneous rotation of the foetal head in occipito posterior position or deep transverse arrest of the head by mere imitation of the normal mechanism of labour. No attempt should be made to deliberately rotate the head but the head

will descend and rotate itself. Also the original idea of Malmstrom (1957) was to stimulate uterine contractions in cases of hypotonic inertia with the help of vacuum traction and by producing pressure on cervix by the foetal head. This idea is fulfilled when it is applied on a cervix which is  $3/4$  dilated, but the cervix should be stretchable and not rigid. This prevents the stretching of ligamentary supports.

The vacuum extractor has its disadvantages too. It is not always readily fixed to the presenting part and its ability to exert traction is limited—a possible advantage. It requires more care and has many parts which must be kept in perfect condition for it to be effective. We have found the instrument very useful as far as safety to the mother and child is concerned. It is very easy to operate with minimum assistance. The only disadvantage is that it required great patience and gentleness on the part of the operator.

#### *Summary*

This is a report of our experience, observations and follow up of 725 cases of Vacuum Extractor used during last 10 years in our institution. It is a very safe instrument for vaginal delivery.

#### *Reference*

1. Bergman, P., Malmstrom, T. and Schoon, I. M.: Acta Obst. & Gynec. Scand 40: 363, 1961.