

Management of Pregnancy in presence of uterine Scar

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Outline

- The scarred uterus – causes
- Complications
- Uterine rupture
- USG for detection of scar thickness
- VBAC
- Caesarean scar pregnancy
- Morbidly adherent placenta

Background

- ▶ Cragin's dictum, 1916 **"once a cesarean, always a cesarean"**
- ▶ In 1910, Mason and Williams –
 - The strength of healed cesarean section scars of guinea pigs & cats tested by subjecting to increasing weights.
 - Rupture was noted in the muscle but not the scar in 100% cases.
- ▶ Kerr's **low transverse uterine incision** – 1921 – reduced maternal mortality from sepsis & hemorrhage
 - Gave greater strength to healed incision site

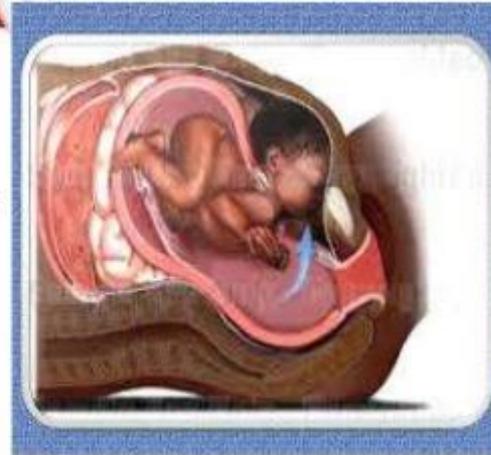
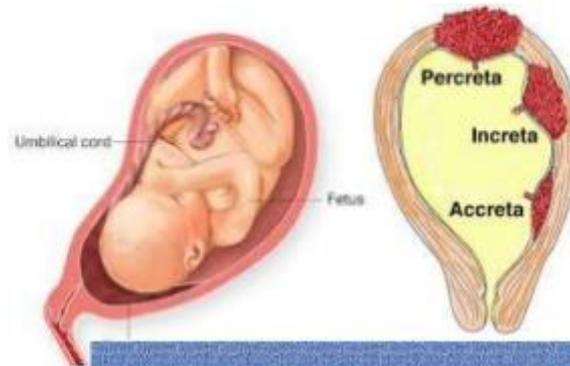
- ▶ Cragin himself witnessed VBAC in a woman in whom he did the cesarean
NYMed . 1916;104.1-3
- ▶ Rethinking the Dictum : Case in 1930s gave an excellent review on VBAC showing 70% success rate in British population
J Obstet Gynaecol Br Commonw. 1971;78.203-14
- ▶ In U.S., till 1970, patients with previous cesarean were mostly delivered by elective repeat cesarean – leading to Five-fold increase in rate of cesarean deliveries
- ▶ From 1980 onwards, reappraisal of the situation, careful selection of candidates for VBAC began
- ▶ First guideline was formed by ACOG in 1999

The Scarred Uterus

- Caesarean Section – single or multiple
- Hysterotomy
- Myomectomy
- Surgery for uterine anomalies

What is the risk?

- Abortion
- Preterm labour
- Placenta praevia
- Adherent Placenta
- PPH
- Peripartum hysterectomy
- Scar rupture



	LSCS	CLASSICAL
Apposition	More perfect	Difficult to appose as thicker musculature
Healing	Part of uterus remains inert	Part contracts/retracts
Stretching effect	Along the line of scar	At right angles
Scar rupture	0.2%	4-9%
Mortality	less	more

Options for a patient with previous cesarean

- ▶ **Elective repeat cesarean Delivery (ERCD)** – Also called ERCS (Elective Repeat Cesarean Section)
- ▶ **Trial of labor after cesarean (TOLAC)**

This can have 2 outcomes

- **Successful TOLAC** – Vaginal Birth After Cesarean Delivery (60 to 80%)
- **Failed TOLAC** – Emergency cesarean Delivery

Which scar is sound?



Low transverse incision



Low vertical incision



Classical incision

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Mode of delivery

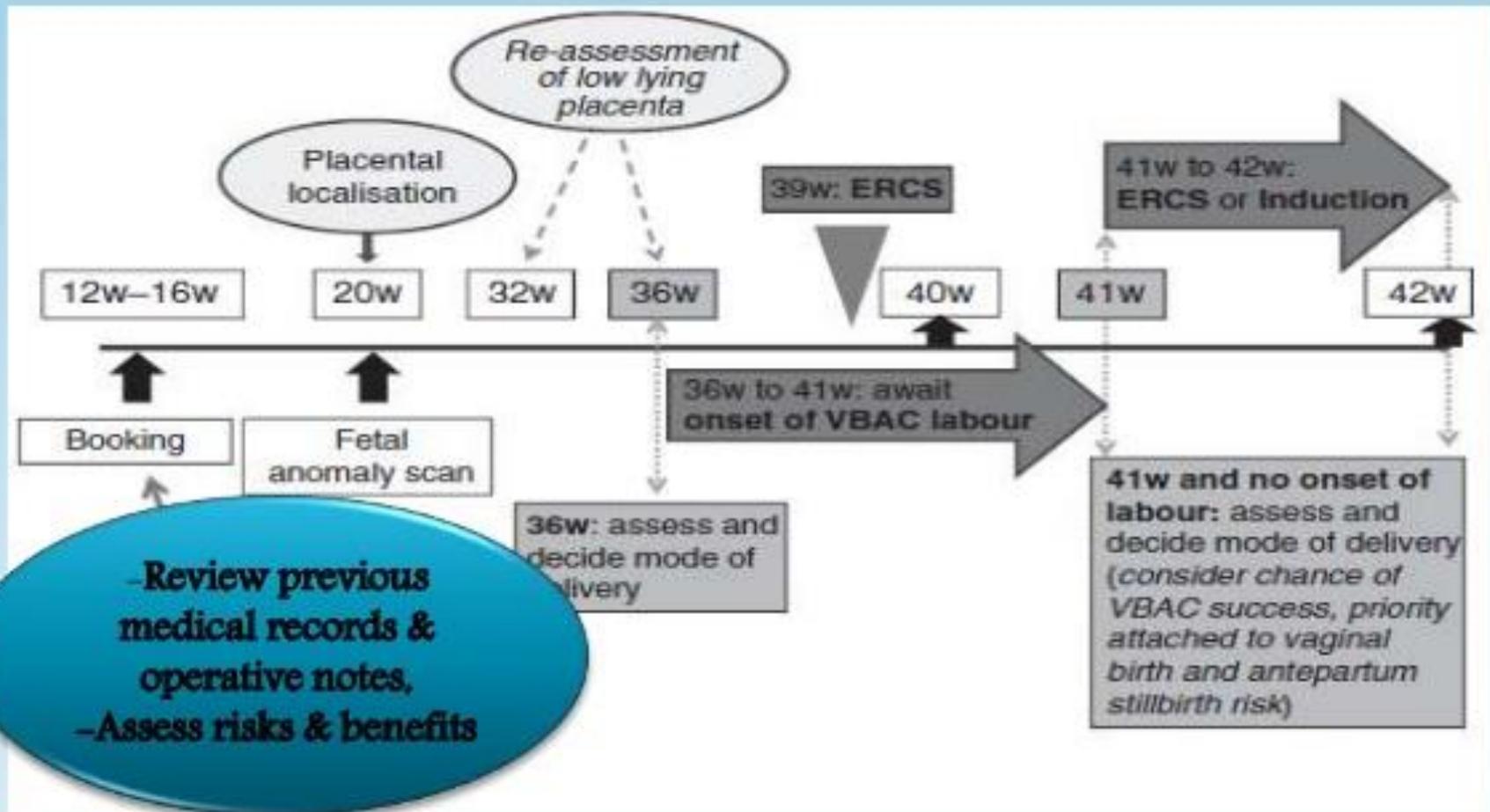
- Once a caesarean always a caesarean?
- Classical caesarean/ hysterotomy → ERCS
- LSCS → ERCS?

TOLAC?



ASSESS SCAR INTEGRITY

Determining The Mode of Delivery



Maternal benefits

VBAC	ERCD
72- 76% chance of success	Able to plan the delivery on a known date
If successful, shorter hospital stay & convalescence	Lower risk of vaginal tears & no worsening of pelvic floor support & continence mechanisms
Increased likelihood of vaginal delivery in future pregnancies	Surgical sterilization can be done at the same time
	Lower risk of transfusion (1%) & endometritis (1.8%) as compared to failed TOLAC

Maternal risks

VBAC	ERCD									
10-15% chance of instrumental delivery & perineal tear requiring suturing	Increases likelihood of cesarean delivery in future pregnancy									
Failed TOLAC increases maternal morbidity	Longer hospital stay & convalescence									
0.5% of risk of uterine scar rupture – most dreaded complication	0.1- 2% chances of serious surgical complications like bladder injury									
24-28% of chance of emergency cesarean delivery	Increased risk of surgical complications with each subsequent cesarean delivery due to adhesions, placenta praevia/accreta									
Higher risk of blood transfusion(1.7%) & endometritis(2%)	<table border="1"> <thead> <tr> <th data-bbox="991 922 1373 1093">No. of CD AHRQ Publication No. 10-0009 March 2010</th> <th data-bbox="1373 922 1752 1093">Placenta accreta</th> </tr> </thead> <tbody> <tr> <td data-bbox="991 1093 1373 1222">1</td> <td data-bbox="1373 1093 1752 1222">0.3-0.6% (not significant)</td> </tr> <tr> <td data-bbox="991 1222 1373 1295">2 or more</td> <td data-bbox="1373 1222 1752 1295">1.4%</td> </tr> <tr> <td data-bbox="991 1295 1373 1372">5 or more</td> <td data-bbox="1373 1295 1752 1372">6.74%</td> </tr> </tbody> </table>		No. of CD AHRQ Publication No. 10-0009 March 2010	Placenta accreta	1	0.3-0.6% (not significant)	2 or more	1.4%	5 or more	6.74%
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Management of previous LSCS

- History
 - Indication for previous LSCS
 - Lower segment
 - Baby weight if CPD
 - Delayed wound healing or any other complication
 - How many years back was the Caesarean done

Maternal & perinatal outcomes in VBAC V/S ERCD

- ▶ Largest & most comprehensive Study is conducted by **Landon et al**
- ▶ Done in women enrolled in NICHD Maternal-Fetal Medicine Units Network, 1999-2002
- ▶ In TOLAC group , n= ~18000
- ▶ In ERCD group, n= ~16000
- ▶ This study includes all women who had a prior cesarean delivery & who had a singleton pregnancy at 20 weeks or more of gestation or whose infant had a birth weight of at least 500 g
- ▶ Women undergoing Cesarean for other indications were excluded

Maternal complications

Complication	Trial of labor	ERCD	Normal labor
Uterine rupture	0.7%	0	0.012% <i>Gradeil F et al, Eur J Obstet Gynecol Reprod Biol. Aug 1994;</i>
Uterine dehiscence	0.7%	0.5%	
Hysterectomy	0.2%	0.3%	0.14% <i>ACOG 2002</i>
Thromboembolic disease	0.04%	0.1%	
Transfusion	1.7%	1%	
Endometritis	2.9%	1.8%	<i>200% Parkland Hospital</i>
Maternal deaths	0.02%		
Other adverse events (broad-ligament hematoma, cystotomy, bowel injury, and ureteral injury)	0.4%		

Maternal deaths in ERCD were 7 in no.
Two of them could be attributed to cesarean
 (Hemorrhage & Anesthesia complications)

Maternal complications

	VBAC	Failed TOLAC
Uterine rupture	0.1%	2.3%
Uterine dehiscence	0.1%	2.1%
Hysterectomy	0.1%	0.5%
Transfusions	1.2%	3.2%
Endometritis	1.2%	7.7%
Thromboembolic diseases	0.1%	0.02%
Maternal death	0.01%	0.04%
Other maternal adverse events	0.01%	1.3%

N Engl J Med 2004; 351:2581–9.

Neonatal benefits

VBAC	ERCD
<1% risk of transient respiratory morbidity (<ERCD)	Avoids 0.1% risk of antepartum still birth since delivery is undertaken at the commencement of 39th week

Neonatal risks

VBAC	ERCD
0.1% risk of antepartum still birth beyond 39 wks while awaiting spontaneous labor	1-3% risk of transient respiratory morbidity
0.04% risk of delivery related perinatal death	
0.08% of HIE (Hypoxic ischaemic encephalopathy) during labor	

Perinatal outcomes for term infants

Outcome	TOL	ERCD
Antepartum stillbirth		
37-38 wk	0.4%	0.1%
39 wk or more	0.2%	0.1%
Intrapartum stillbirth		
37-38wk	0.02%	0
39wk or more	0.01%	0
HIE	0.08	0
Neonatal death	0.08%	0.05%

N Engl J Med 2004; 351:2581-9.

Integrity of scar

- Factors to consider:
 - Indication of previous CS
 - Extension of the uterine incision
 - Puerperal sepsis
- Previous operative notes
- Defect in scar in inter-pregnancy interval
- Short inter-pregnancy interval
- Pregnancy complications[twins/ polyhydramnios]
- Previous vaginal delivery.

Counselling the patient

- Discuss the pros and cons of VBAC
- Explain the risk of rupture uterus and the consequences
- Informed consent

Management of post caesarean pregnancy.

- Manage as high risk
- Elective hospitalisation
 - 36 wks- classical CS/ hysterotomy
 - 38 wks-LSCS
- Mode of delivery
 - Classical CS/ other extensions– ERCS[38 wks]
 - LSCS– Individualise
 - ERCS at 39 wks
 - TOLAC[spontaneous/induction]

Scar thickness on USG

- Scar thickness of 3.5 mm or more
 - Homogeneity of scar
 - Triangular shape
 - Perfusion
 - Volume on 3D scan
-
- Can we accurately predict the risk of rupture uterus?

Uterine rupture

- Symptoms
 - Sudden discomfort and pain
- Signs
 - Maternal tachycardia
 - Fetal tachycardia , fetal distress
 - Loss of uterine contour
 - Absent fetal heart
 - Sudden PV bleeding
 - Haematuria

Management of uterine rupture

- Urgent call for operation theatre
- IV line arrange for blood
- Emergency laparotomy
- Deliver the baby
- Uterine rupture can be sutured
- Obstetric hysterectomy may be necessary

Pregnancy following Myomectomy

- Potential risk of rupture
- Close observation
- Was the cavity opened?
- Vaginal delivery if subserous or intramural if cavity intact

Pregnancy following hysterotomy

- Risk of rupture should be explained
- Careful observation
- Elective Caesarean at 36 -37 weeks

Morbidly adherent placenta

- Placenta Accreta
- Placenta increta
- Placenta percreta

- Chances are higher with more the number of Caesareans

USG with colour Doppler

MRI

Consider embolisation, consent for obstetric hysterectomy

Termination of early pregnancy in the scarred uterus

- Using mifepristone and misoprostol
- Legal in India till 49 days
- No contraindication in case of scarred uterus however FIGO recommends half the dose of misoprostol
- Careful observation for signs of rupture
- Can be done in hospital setting when number of Caesareans is more

Caesarean Scar Pregnancy

- Type of ectopic pregnancy
- 2 types, endogenic and exogenic

DISCUSSION

- Caesarean scar pregnancy is a rare type of ectopic pregnancy (1:1800) and is a life threatening condition due to risk of severe haemorrhage.
- A rising problem due to increasing number of Caesarean deliveries worldwide in the recent years .
- It is believed to result from canalisation of the LSCS scar to the endometrial cavity creating a “niche” in which the pregnancy may implant.

Causes of Caesarean Scar Pregnancy

- Previous Caesarean one or more
- Previous hysterotomy
- Previous myomectomy
- Repeated D and C
- Previous abnormal placentation