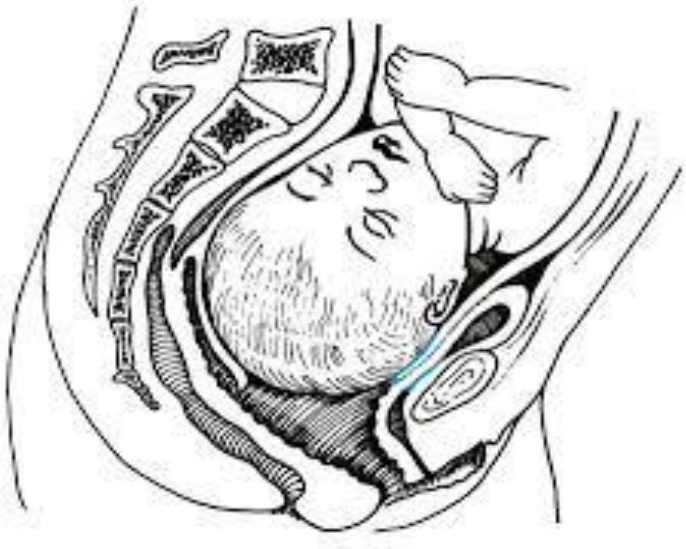
Urogenital fistula – provoked by cesarean section?

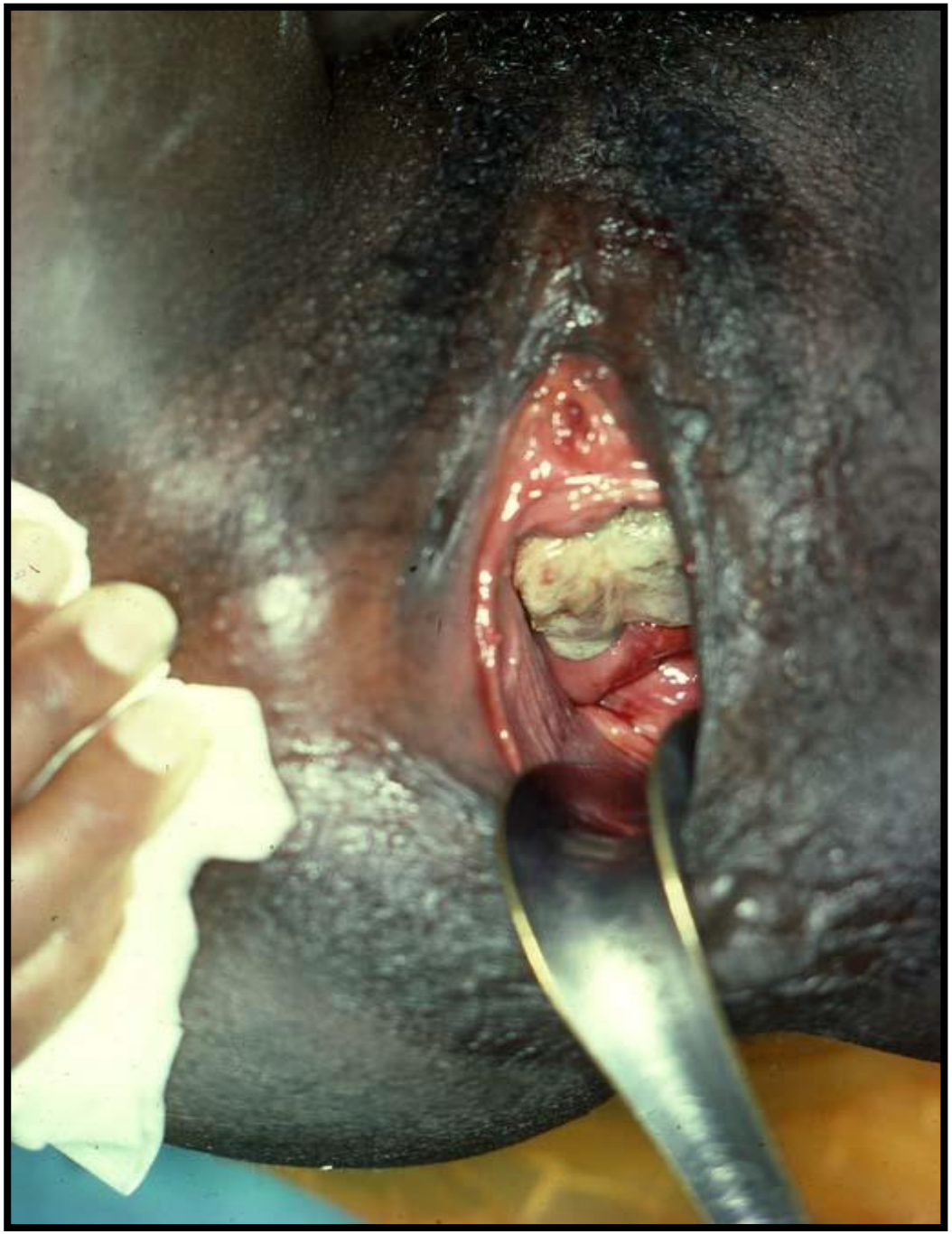
Mathias Onsrud

How can Cesarean Section

- intended to *prevent* obstructed labor and fistula due to ischemic pressure necrosis
- be the *cause*

  of obstetric fistula ??





Outline

- Some epidemiological and clinical data
- Pathophysiology
- Technical considerations
- Consequences for education

Intraoperative complications in Norway 8,5 % of 898 cesareans

- Risk factors:
  - emergency operation
  - obesity
  - labor prior to surgery
  - increased duration of labor or rupture of fetal membranes prior to operation
  - low gestational age
  - presenting part of the fetus below the ischial spinal plane.

Rasmussen & Maltau Tnlf 1990:110:351

Cesarean section-related maternal mortality

- In The Netherlands 1983-1992:

"7 times more hazardous than vaginal birth"
(0.28/1000 *vs* 0.04/1000)

Schuitemaker et al: AOGS 1997;76:332-334

Maternal mortality, UK 1994-1996

Mode of Delivery	Total Births	Total Deaths	Death Rate (per 100000)	Risk Ratio (95% CI)
Vaginal	1,845,957	38	2.1	1.0
Cesarean				
Elective	153,829	9	5.9	2.84 (1.72-4.70)
Emergency	197,781	36	18.2	8.84 (5.60-13.94)
Total	351,610	45	12.8	6.22 (3.90-9.90)

Hall & Bewley, Lancet 1999;354:776.

Urinary lesions related to cesarean

Scotland 1976-1993

- 16 bladder lesions: 1.4/1000
  - Elective cesarean 1
  - Emergency cesarean 15

- 4 ureter lesions: 0.27/1000

  All 4 preceded by forceps- og vacuum attempts

Rajasekar D BJOG 1997;104:731

International Journal of Gynecology and Obstetrics 114 (2011) 10–14

Contents lists available at ScienceDirect

International Journal of Gynecology and Obstetrics

journal homepage: www.elsevier.com/locate/ijgo

www.figo.org

CLINICAL ARTICLE

Cesarean delivery-related fistulae in the Democratic Republic of Congo

Mathias Onsrud [a,*], Solbjørg Sjøveian [b], Denis Mukwege [c]

[a] Department of Gynecology, Ullevål University Hospital, Oslo, Norway
[b] Section for International Health, University of Oslo, Oslo, Norway
[c] Department of Obstetrics and Gynecology, Panzi Hospital, Bukavu, Democratic Republic of Congo

ARTICLE INFO

Article history:
Received 6 December 2010
Received in revised form 26 January 2011
Accepted 23 March 2011

Keywords:
Cesarean delivery
Cesarean hysterectomy
Complications
Iatrogenic
Urogenital fistula

ABSTRACT

Objective: To compare the characteristics of urogenital fistulae after cesarean delivery with those after spontaneous vaginal delivery. *Methods:* A retrospective analysis of hospital records of 597 consecutive patients with a urogenital fistula who received treatment at Panzi Hospital, Bukavu, Democratic Republic of Congo, during 2005–2007. *Results:* Of 576 women with an obstetric fistula, 229 (40%) had had a cesarean delivery; 55 (24%) of the 229 fistulae were considered to be iatrogenic. The distribution of risk factors (age, stature, parity, and labor duration) was similar to that among 226 women with a spontaneous vaginal delivery, but the odds ratios for having a ureterovaginal or a vesicouterine fistula were 11.9 (95% confidence interval [CI] 2.8–51.2) and 9.5 (95% CI 2.8–31.9), respectively. Vesicovaginal fistulae with cervical involvement were also significantly more frequent in the cesarean delivery group. The fistulae in this group had less surrounding fibrosis and there was less treatment delay. Stillbirth rates were 87% (cesarean delivery) and 95% (spontaneous vaginal delivery). *Conclusion:* The data indicate that cesarean delivery-related fistulae are a separate clinical entity. Focus on this condition is important for fistula prevention and provision of adequate obstetric care, particularly for training in surgery and alternative delivery methods.

Nobel peace price winner 2018

Table 1
Urogenital fistulae by cause, type, and proportion presumed to be iatrogenic.[a]

Intervention performed	All fistulae	Presumed iatrogenic etiology	Type of urogenital fistula					C
			VVF low	VVF midvaginal	VVF high	VUF	UrVF	
Obstetric								
Spontaneous vaginal delivery	226 (37.9)	1/226 (0.4)	98 (43.4)	70 (31.0)	47 (20.8)	3 (1.3)	2 (0.9)	
Vacuum-assisted vaginal delivery	92 (15.4)	0/92 (0.0)	43 (46.7)	26 (11.5)	19 (20.7)	1 (1.1)	0 (0.0)	
Obstetric manipulations[b]	10 (1.7)	10/10 (100.0)	2 (20.0)	1 (10.0)	5 (50.0)	2 (20.0)	0 (0.0)	
Symphysiotomy	5 (0.8)	3/5 (60.0)	3 (60.0)	1 (20.0)	1 (20.0)	0 (0.0)	0 (0.0)	
Cesarean delivery	229 (38.4)	55/229 (24.0)	62 (27.1)	57 (24.9)	58 (25.3)	26 (11.4)	22 (9.6)	
Cesarean hysterectomy	9 (1.5)	9/9 (100.0)	0 (0.0)	3 (33.3)	1 (11.1)	1 (11.1)	4 (44.4)	
Vacuum attempt followed by cesarean delivery	5 (0.8)	5/5 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (40.0)	3 (60.0)	
Gynecologic								
Abdominal hysterectomy	9 (1.5)	9/9 (100.0)	0 (0.0)	5 (55.6)	0 (0.0)	0 (0.0)	4 (44.4)	
Vaginal hysterectomy	3 (0.5)	3/3 (100.0)	0 (0.0)	2 (66.7)	0 (0.0)	0 (0.0)	1 (33.3)	
Gynecologic manipulations[c]	3 (0.5)	3/3 (100.0)	3 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	
Other[d]	6 (1.0)	0/6 (0.0)	2 (33.3)	3 (50.0)	1 (16.7)	0 (0.0)	0 (0.0)	
Total	597 (100.0)	98/597 (16.4)	213/597 (35.7)	168/597 (28.1)	132/597 (22.1)	35/597 (5.9)	36/597 (6.0)	1

Abbreviations: RVF, rectovaginal fistula; UrVF, ureterovaginal fistula; VVF, vesicovaginal fistula; VVF low, VVF with involvement of urethra/sp involvement of cervix; VUF, vesicouterine fistula.

[a] Values are given as number (percentage).

[b] Manual extraction, placental retention, curettage.

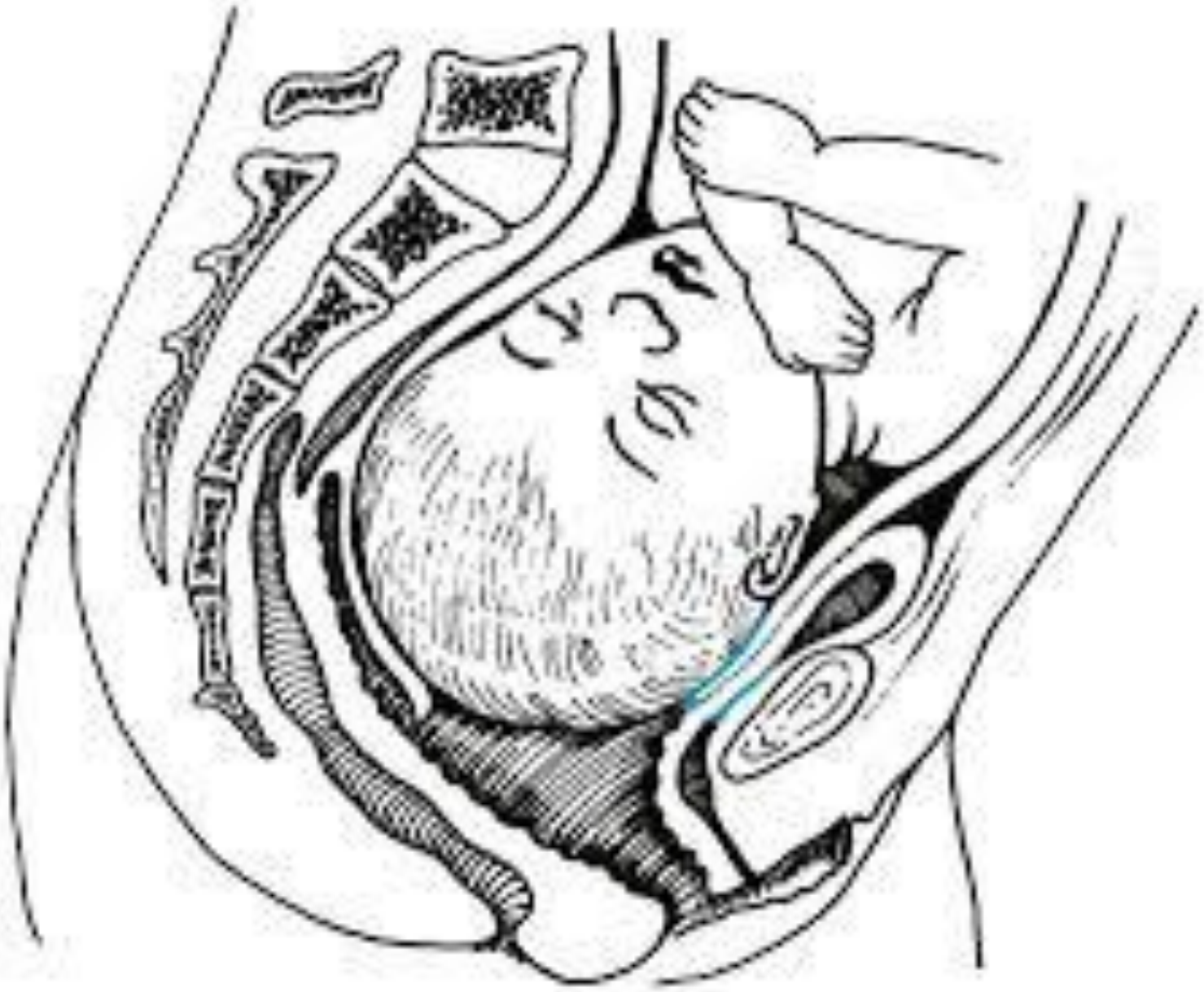
[c] Abortion interventions, curettage.

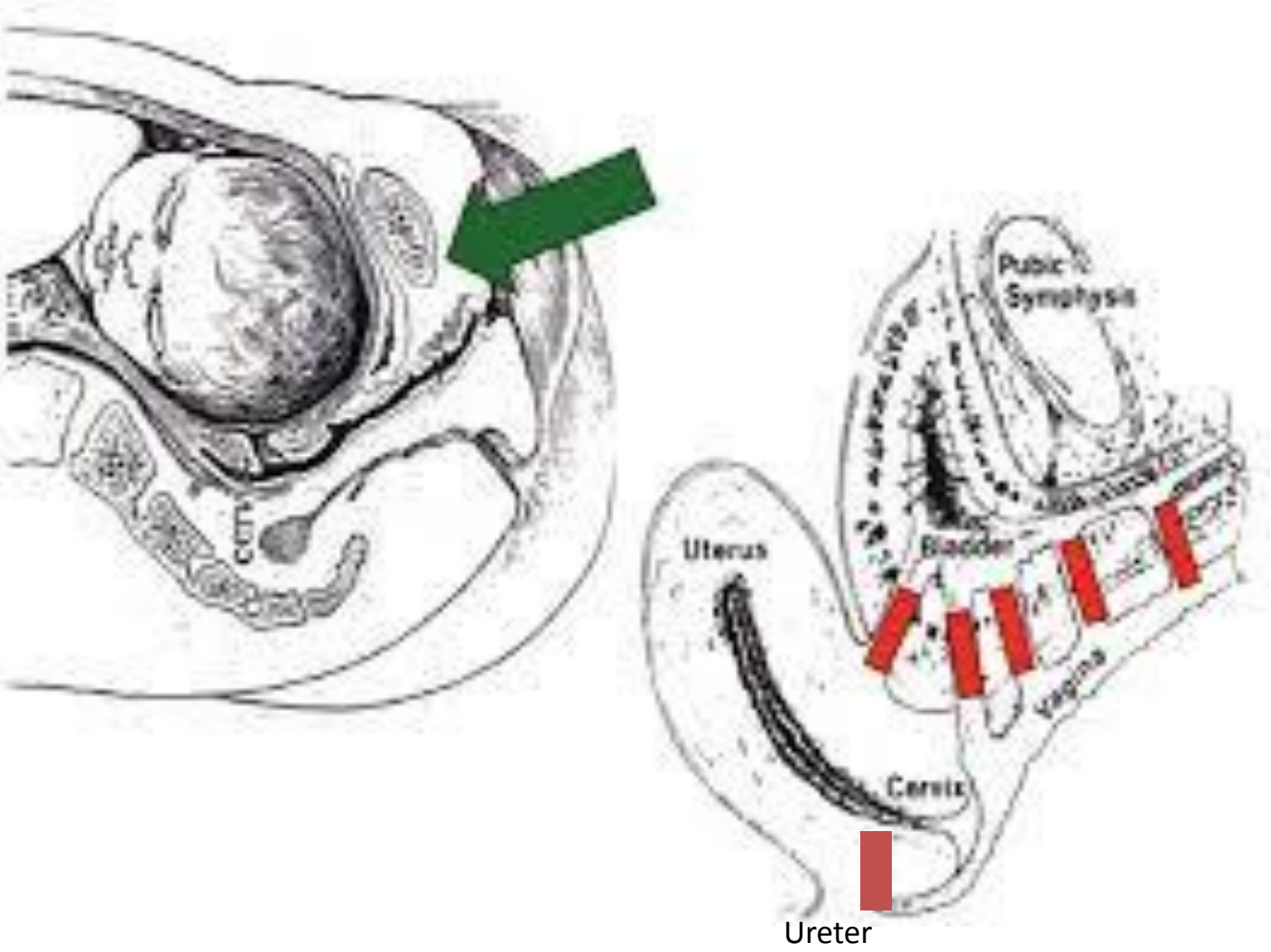
[d] Sexual violence, infections.

Fistula location

Mode of delivery*	Vesico-vaginal Low	Vesico-vaginal Midway	Vesico-vaginal High	Vesico-uterine	Uretero-vaginal
Spont. vaginal, 226 w.	98 (43%)	70 (31%)	47 (21%)	3 (1.3%)	2 (0.9%)
Cesarean section, 229 w.	62 (27%)	57 (25%)	58 (25%)	26 (11%)	22 (10%)

*Risk factors (age, height, parity, labor duration): n.s.
Stillborn: Vaginal 95%, Cesarean 87%, p=0.005




Pubic Symphysis
Uterus
Bladder
Vagina
Cervix
Ureter

Urogenital fistula

- Traditionally, appears in low resource countries
  - Obstetrical > Gynecological
  - Spontaneous > Iatrogenic
- Trend recent years:
  - More gynecological
  - More iatrogenic
  - Many “obstetrical” are iatrogenic (i.e. cesarean-related)

<u>Panzi hospital, DR Congo</u>:

2007: 16 % “iatrogenic”

2017: 60 % “iatrogenic” (Mukanire, *in prep*.)

Our study group at Panzi hospital

Mukwege

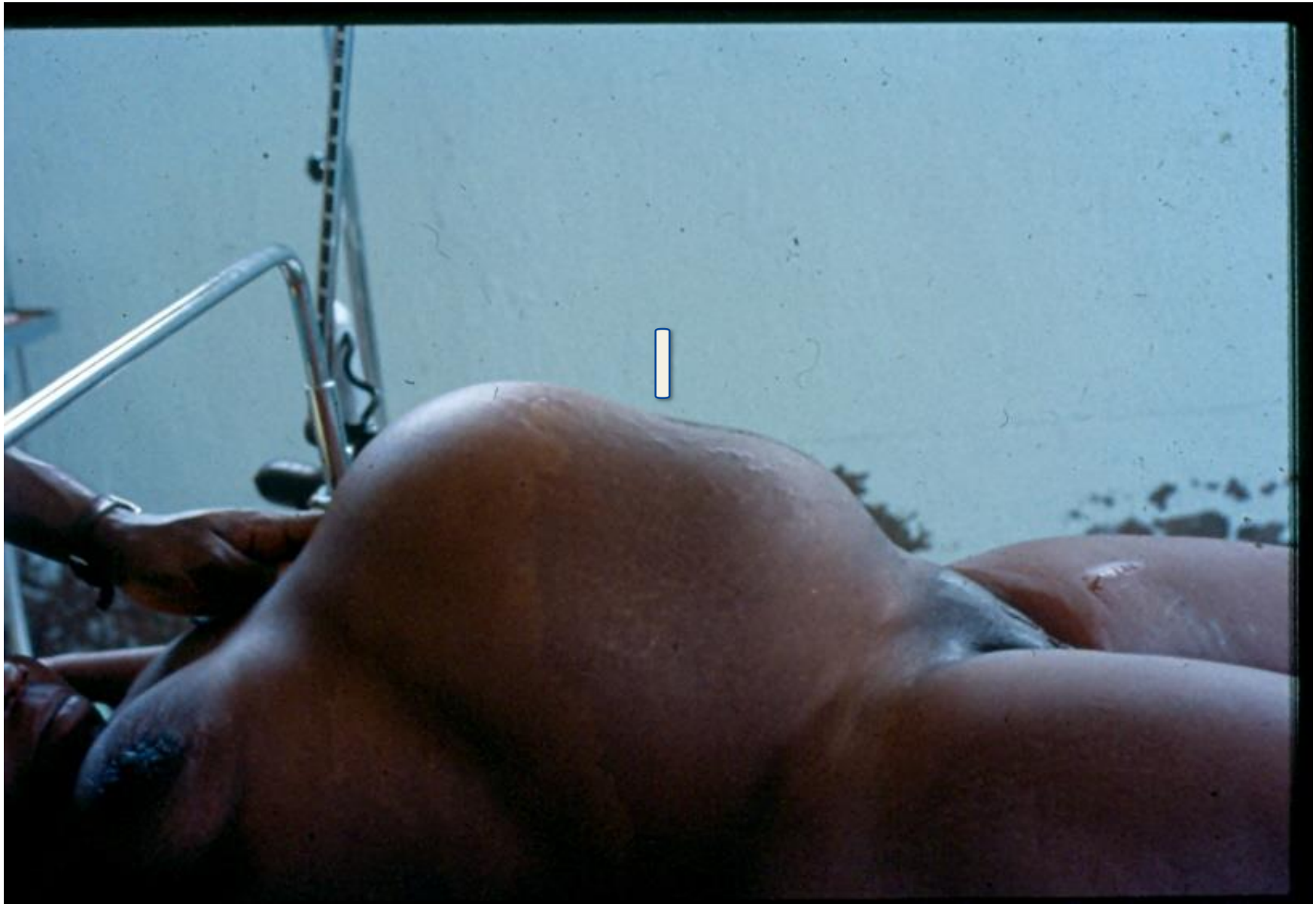
M
u

Intraoperative damage may occur..

- at *entry* (bladder/cervix/vagina is lifted up)
- when *delivering* the child from pelvis (by force)
- *post delivery*: suturing and hemostasis

Predisposing factor: Prolonged ischemia due to obstructed labor

”Bandl’s ring”



Some practical advices

- Elective procedure (prenatal diagnosis)
- Avoid late cesareans (in 2nd stage)

  Alternatives:
  - "Active management of labor"
  - Vacuum/forceps. (Symphysiotomy?)
  - Dead fetus: Feto-destruction, extraction
- Surgical technique
  - Empty bladder (OBS: Adhesions to abdominal wall !)
  - High uterotomy
  - Hemostasis, sutures. (Where is the bladder/-ureter/-vagina?)

When the presenting part is deeply engaged in the pelvis:

- Avoid forcing down your hand beside the fetus! (also increased infection risk!)
  - An assistant pushes upwards from the vaginal side
  - Inverse forceps (using one or two branches)
  - Reversed breech delivery (± extension of the uterotomy upwards. Midline “classical” uterotomy is preferable) -> less infection?

Avoid cesarean hysterectomy !

- Uterine ruptures can normally be sutured
- B-Lynch suture for an atonic uterus
- Intrauterine balloon

If hysterectomy is inevitable:

Localice the cervical edge,
or do supravaginal amputation

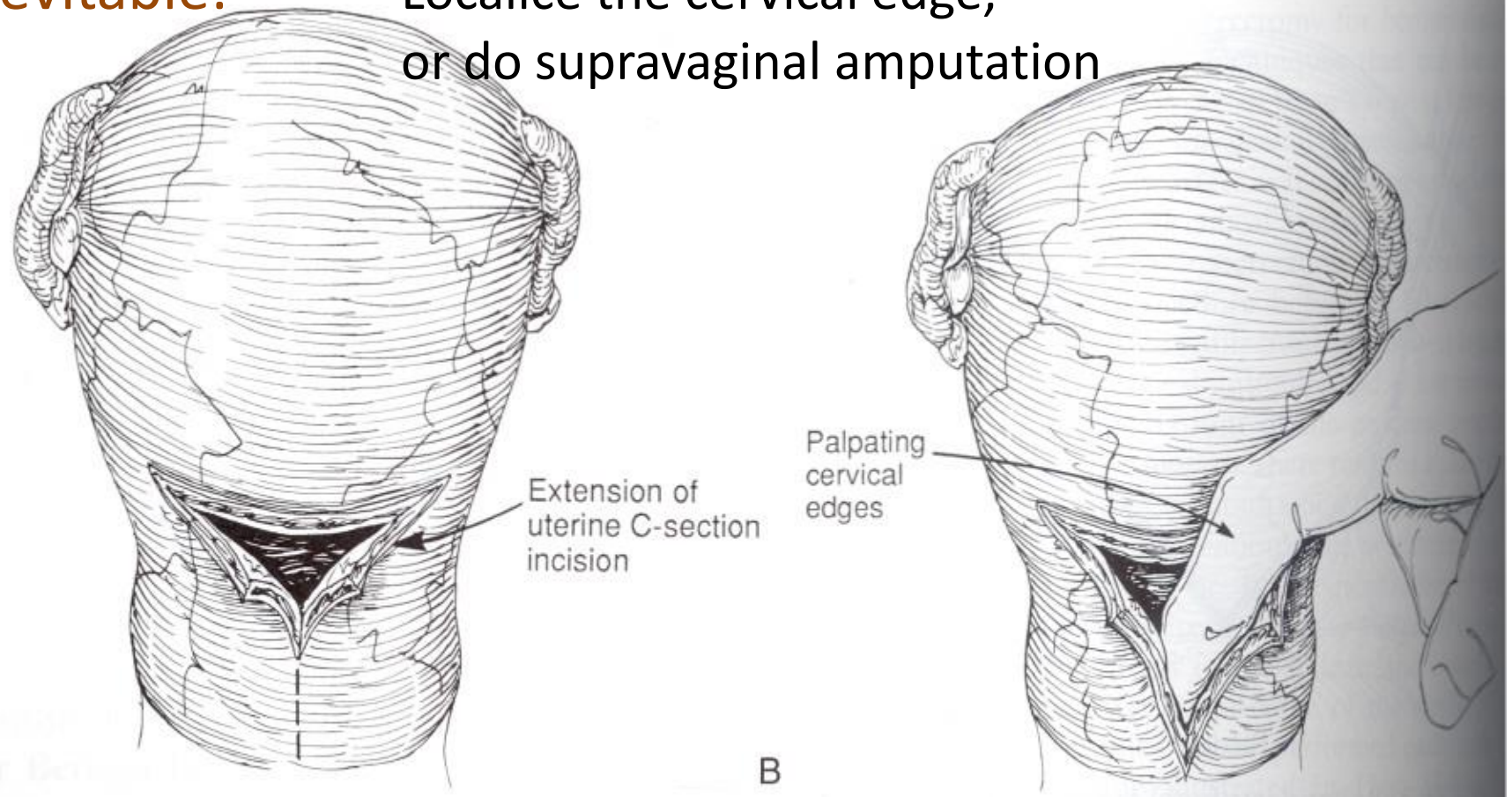
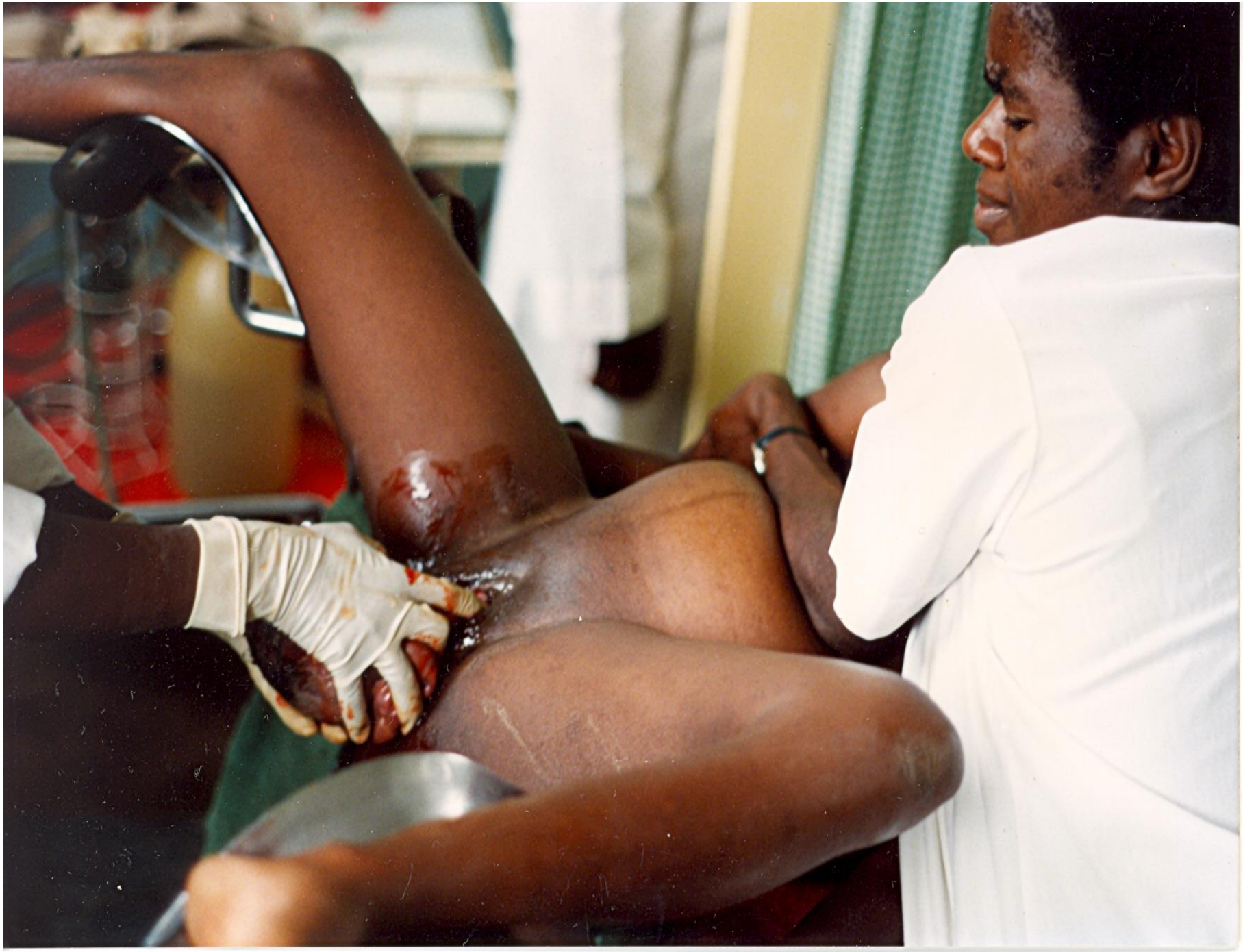


FIGURE 37.11. Avoiding ureteral injury with removal of the cervix at C-hysterectomy. **A:** Extension of uterine Caesarian section incision downward in the midline of the anterior cervix. **B:** Palpating cervical edges internally.

Conclusions – “take home lessons”

- Cesarean will add to the fistula risk, which is mainly due to the prolonged pressure ischemia
- Cesarean delivery-related fistula is a separate clinical entity, and likely when the fistula is located high: Vesico-*uterine*, *uretero*-vaginal and *high* vesico-vaginal
- A large number of these fistula types in an area indicate faulty cesarean service
- Education: Indications and operative technique must be focused on; and alternatives to cesarean section practiced



Deliveries at Kaziba hospital, Eastern Congo

	1971-1972 N	(%)	1991-1992 N	(%)	2006-2007 N	(%)
Total	2038	(100)	6320	(100)	4737	(100)
Cesareans	127	(6,2)	760	(12,0)	914	(19,3)
Uterine ruptures	3	(0,15)	37	(0,60)	38	(0,80)
Vacuum/forceps	183	(9,1)	279	(4,4)	43	(0,9)

Tidsskr Nor Legeforen nr. 9, 2008; 128: 1078–80