1 May 2014

The optimized Caesarean Section – A spreading method, but what are the consequences on human evolution?

Michael Stark
The New European Surgical Academy (NESA)

Disclosure

Michael Stark ist the president of the New European Surgical Academy (NESA) and has nothing to declare.

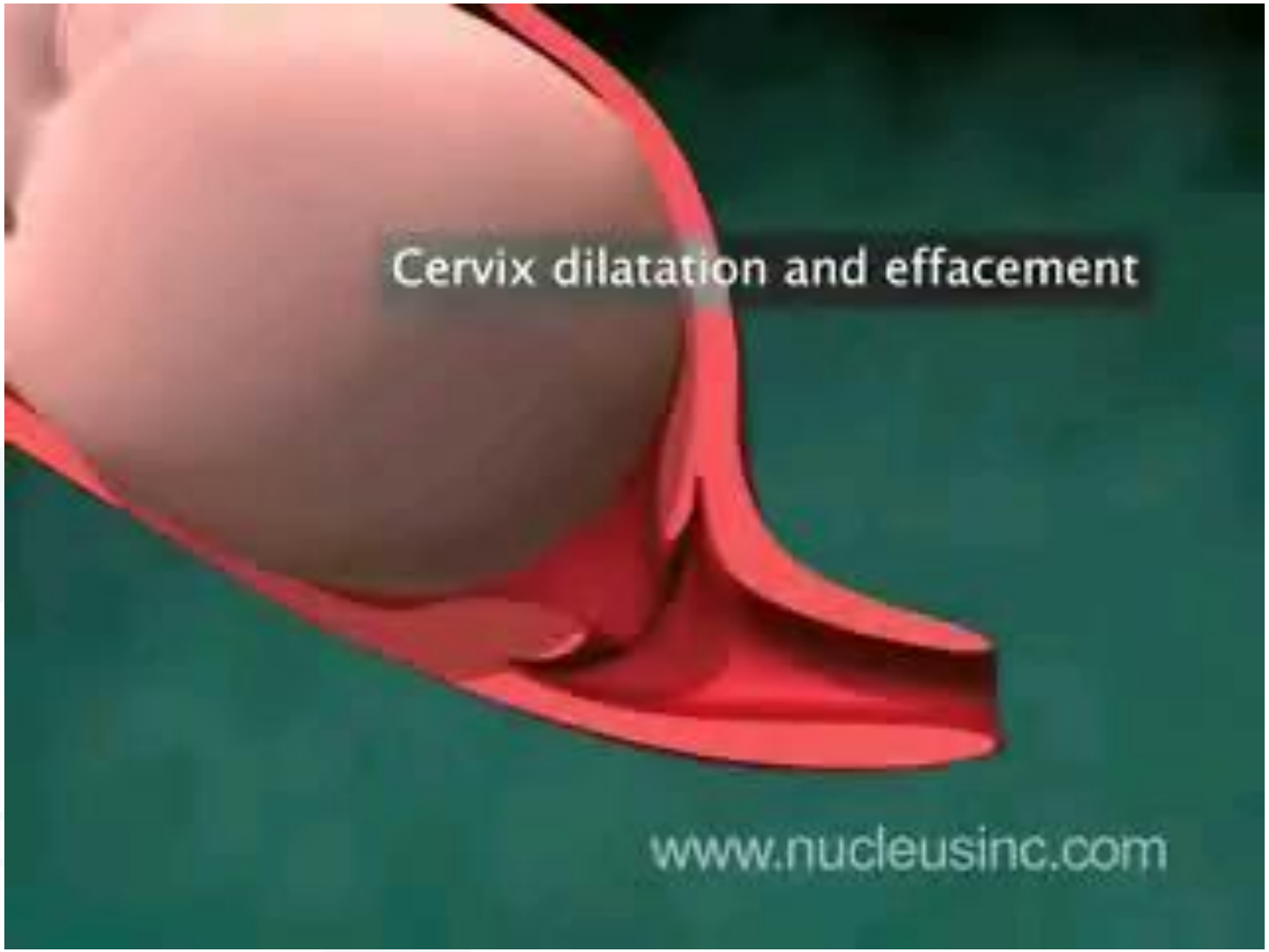

ELSEVIER
URBAN & FISCHER
Michael Stark (Hrsg.)
Der Kaiserschnitt
Indikationen – Hintergründe –
Operatives Management der
Misgav-Ladach-Methode
URBAN & FISCHER

KAPITEL 27

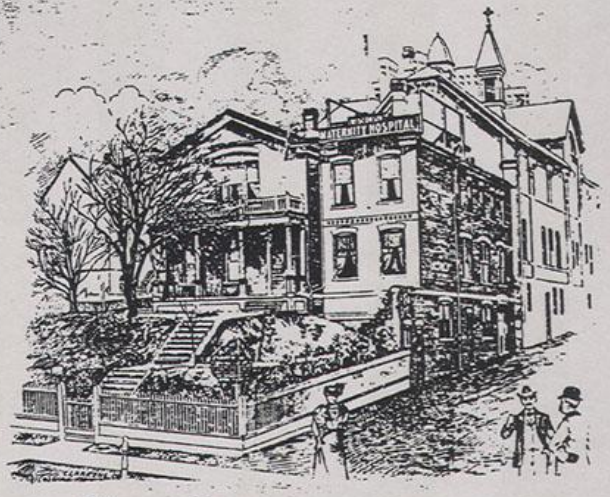
Michel Odent

Wie steht es um die Zukunft einer durch Kaiserschnitt entbundenen Zivilisation?

What is the future of a civilization delivered by c-section?


Cervix dilatation and effacement
www.nucleusinc.com

Appendix A



Wisconsin College of Midwifery and Maternity Hospital.

INCORPORATED 1889.

For Teaching the Theory and Practice of Midwifery and Treatment in Accouchements and all Kinds of Women's Diseases.

The very best Physicians are obtained to assist in all cases within or without the College, in Medicine, Surgery and Obstetrics.

This Institution was founded for the benefit of suffering humanity, and is under the supervision of

J. T. BOLLARD, M. D., assisted by MARY KLAEN, Midwife and Matron; and HELEN MAYER, Midwife and Assistant Matron.

This College and Hospital enjoys the very highest reputation.

For further information apply to

HELEN MAYER, Sec.,

312 Cherry Street, Milwaukee, Wis.

74 1173

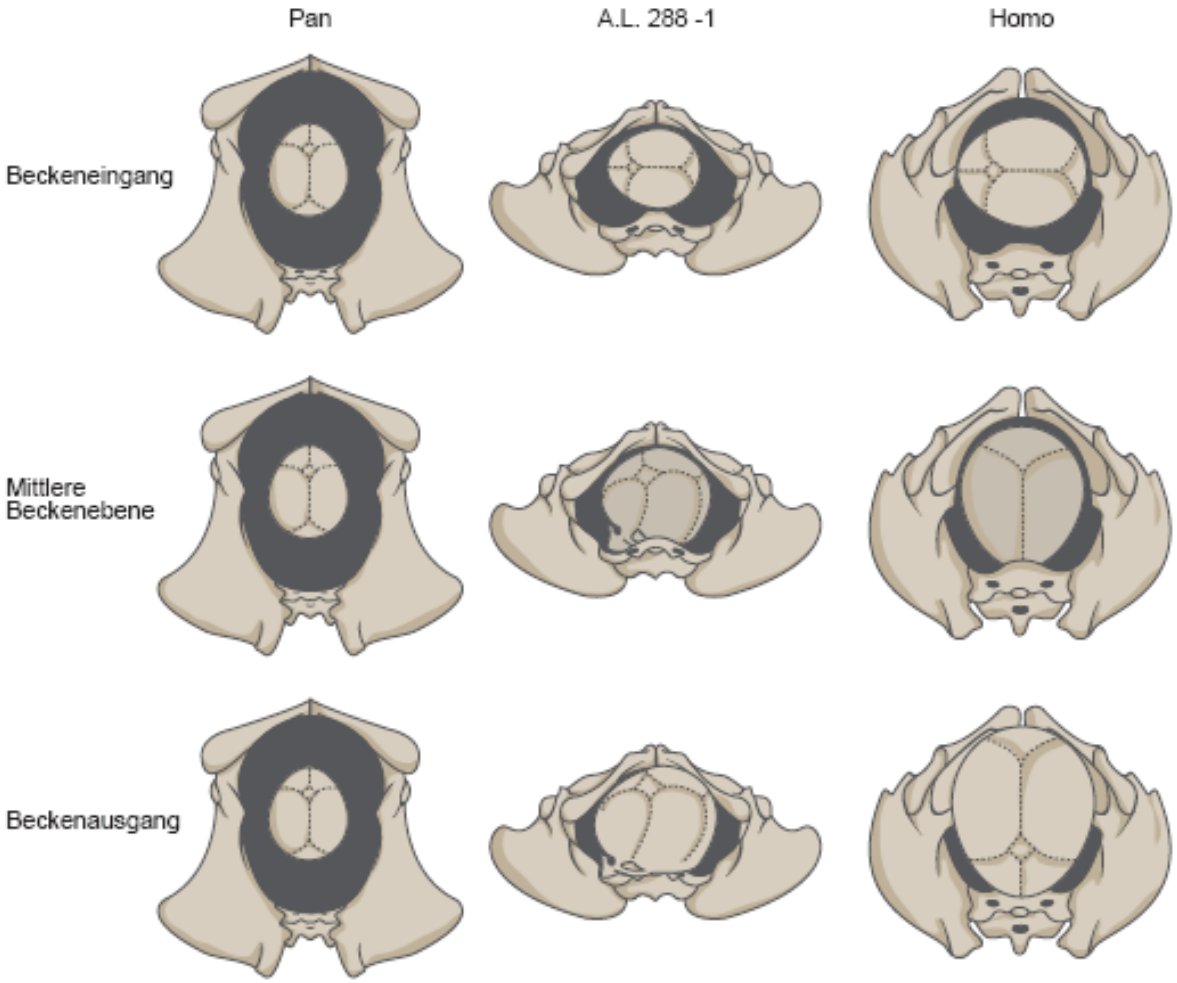
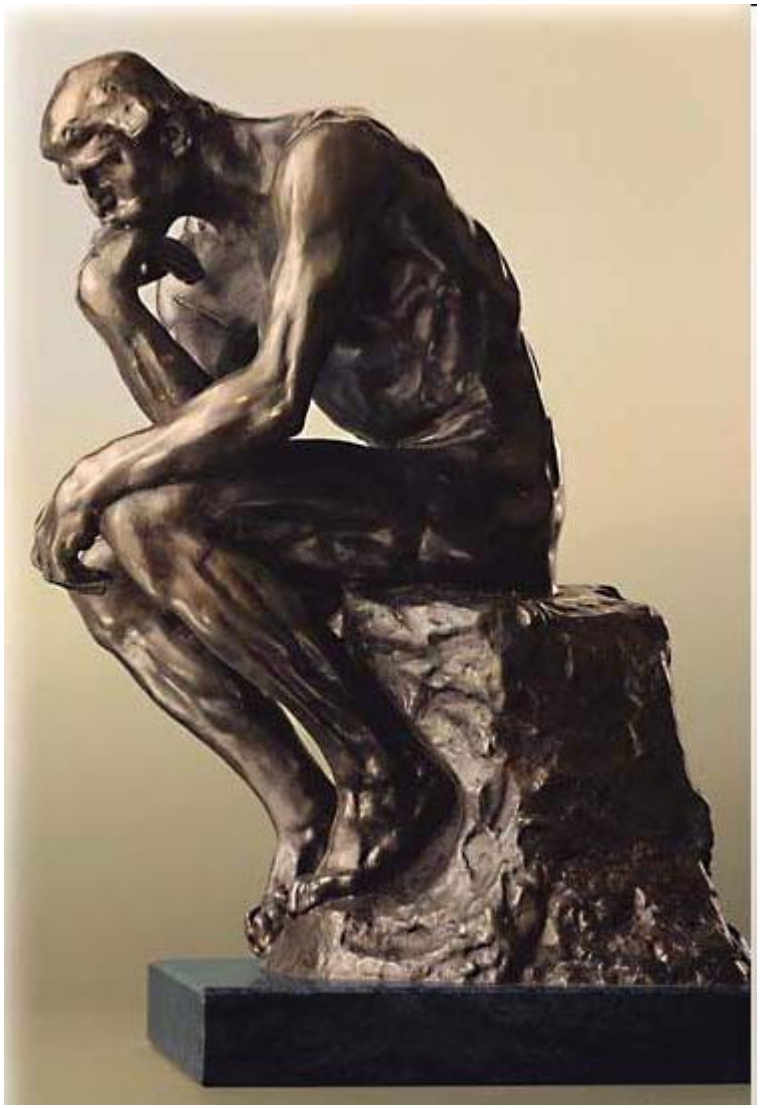


Abb. 2.3 Vergleich der Geburtsmechanismen beim Schimpansen *(Pan)*, *Australopithecus* (A.L. 288-1) und einem modernen Menschen *(Homo)*. Das Diagramm zeigt den Durchtritt des neonatalen Kopfes durch den Geburtskanal aus dem Blickwinkel einer Hebamme oder eines Geburtshelfers. In jeder Zeichnung werden das mütterliche Becken und der neonatale Kopf von unten gezeigt, mit dem Sakrum am unteren Bildrand und der Symphyse am Oberrand [modifiziert nach Tague und Lovejoy 1986].

VS.



Kaiserschnitt

Artikel drucken
Artikel versenden
Artikel kommentieren

Aktualisiert am: 24.03.2002

Kaiserschnitt für besseren Sex?

Wecarelife: Jetzt gibt es seit Millionen von Jahren natürliche Geburten...

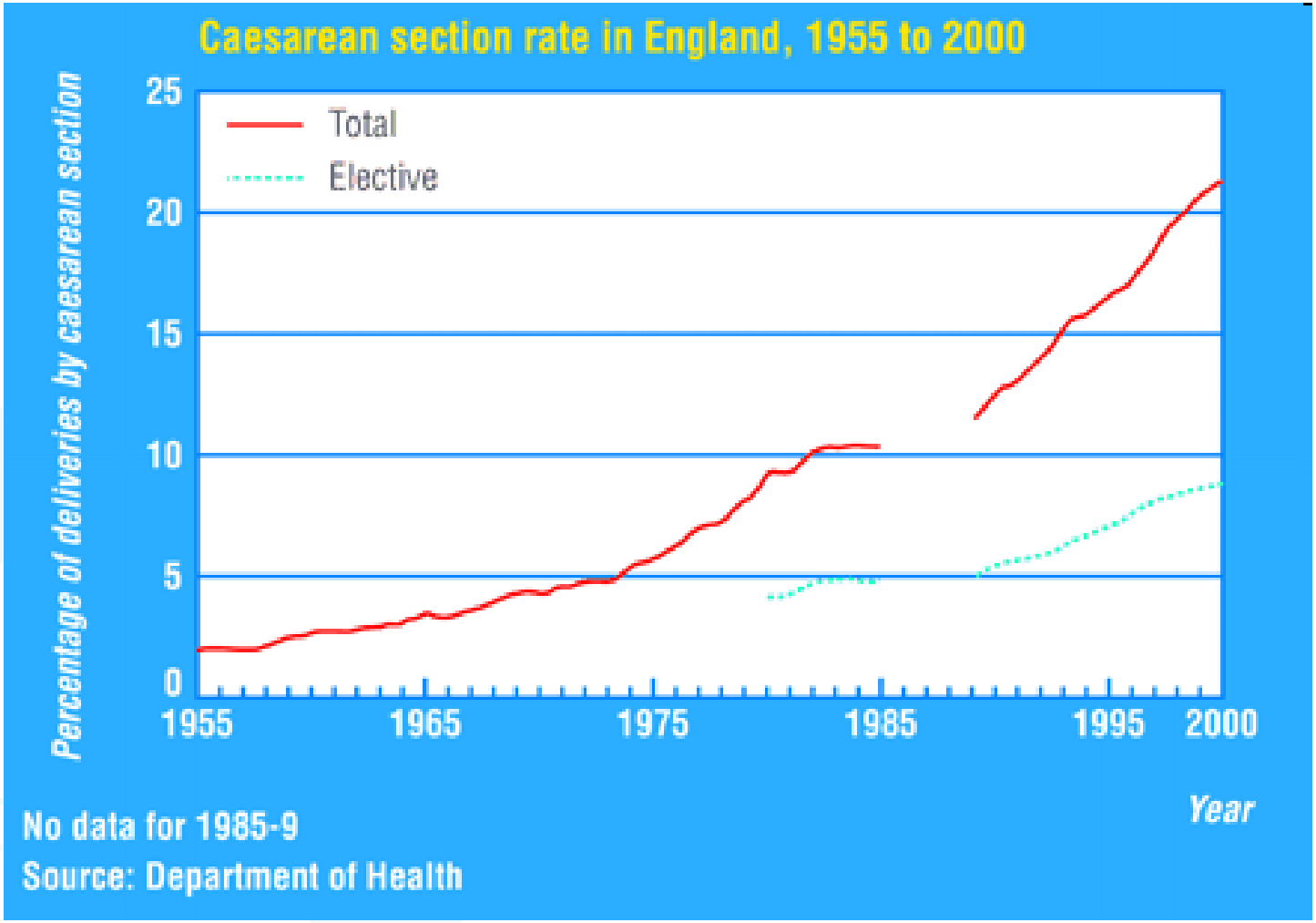
Dr. Michael Adam: Mich brauchen Sie nicht zu überzeugen. Ich glaube, dass die Evolution das größte Erfolgsprogramm der Geschichte ist. In den USA gibt es in den U-Bahnen Werbung, die sagt: "Save your Love-Channel, have a Caesarean". Das ist meiner Meinung nach das allerletzte! Das ist eine so unterschwellige Argumentation, die - das sag ich jetzt

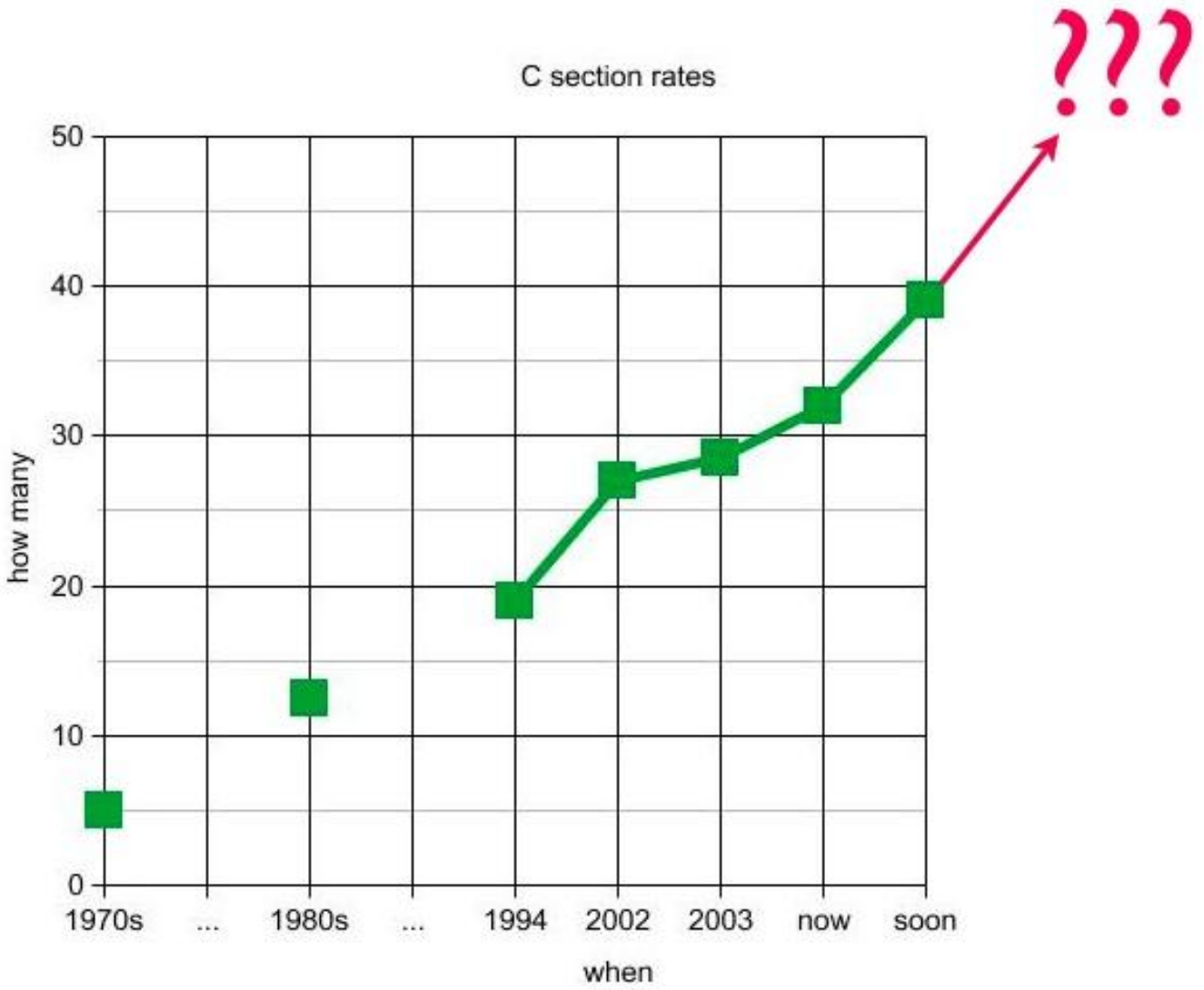
"the authors support the view that the parturient herself should be enabled to decide what level of risk is acceptable to her"

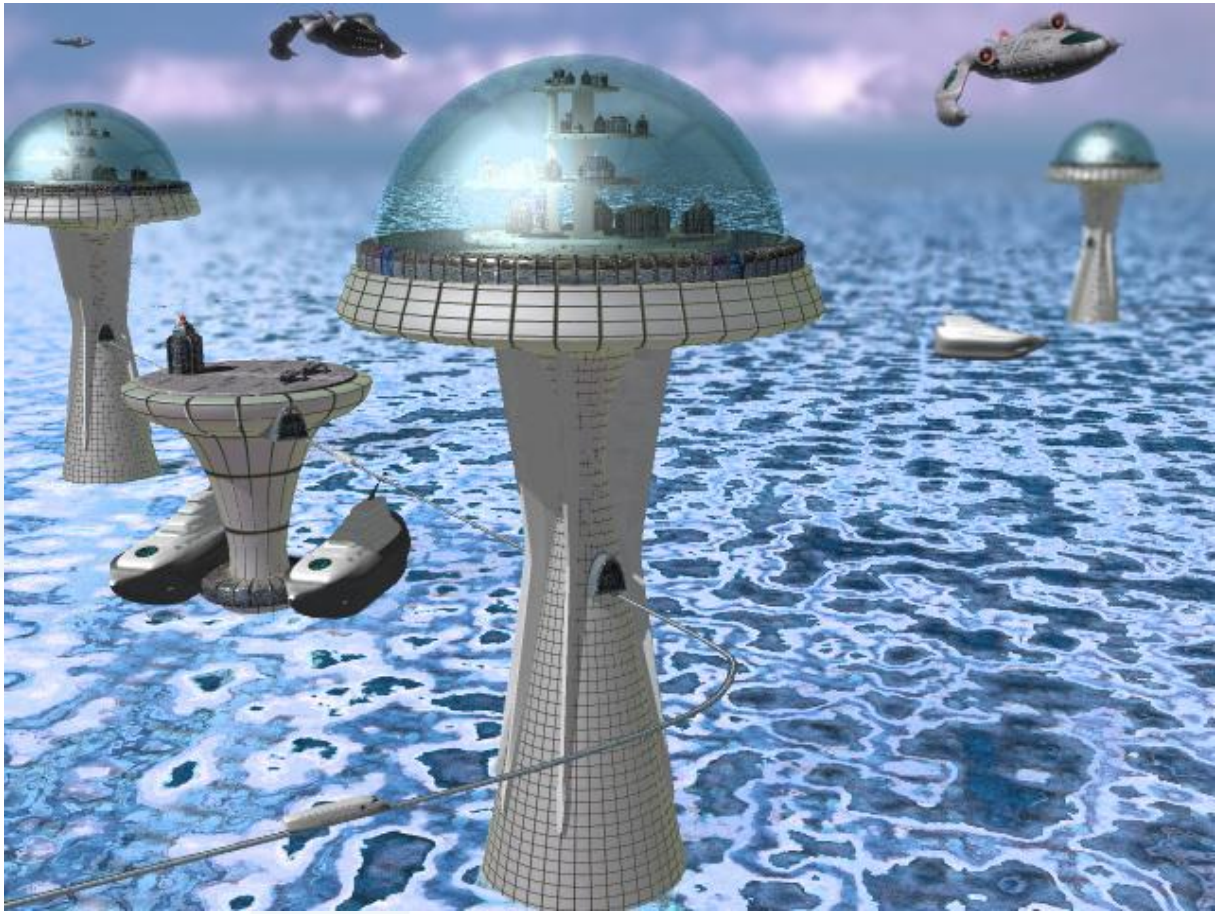
Husslein P, Wertaschnigg D. Ther Umsch. 2002;59(12):660-6.

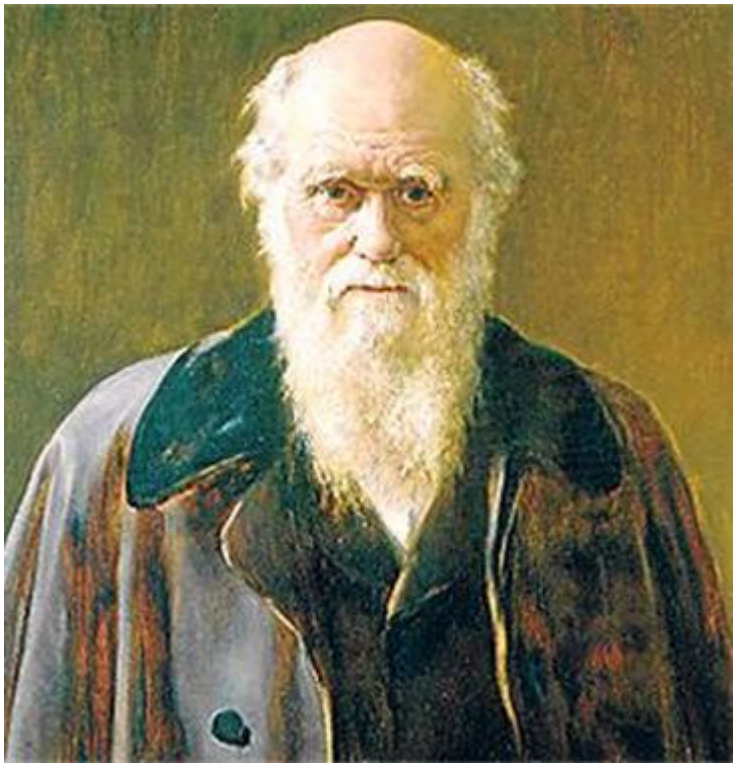
"Elective CS is a safe and psychologically well tolerated procedure. The results are comparable with uncomplicated vaginal delivery and far superior to secondary intervention such as vacuum delivery or emergency CS."

Schindl M, Birner P, Reingrabner M, Joura E, Husslein P, Langer M. Acta Obstet Gynecol Scand. 2003;82(9):834-40.

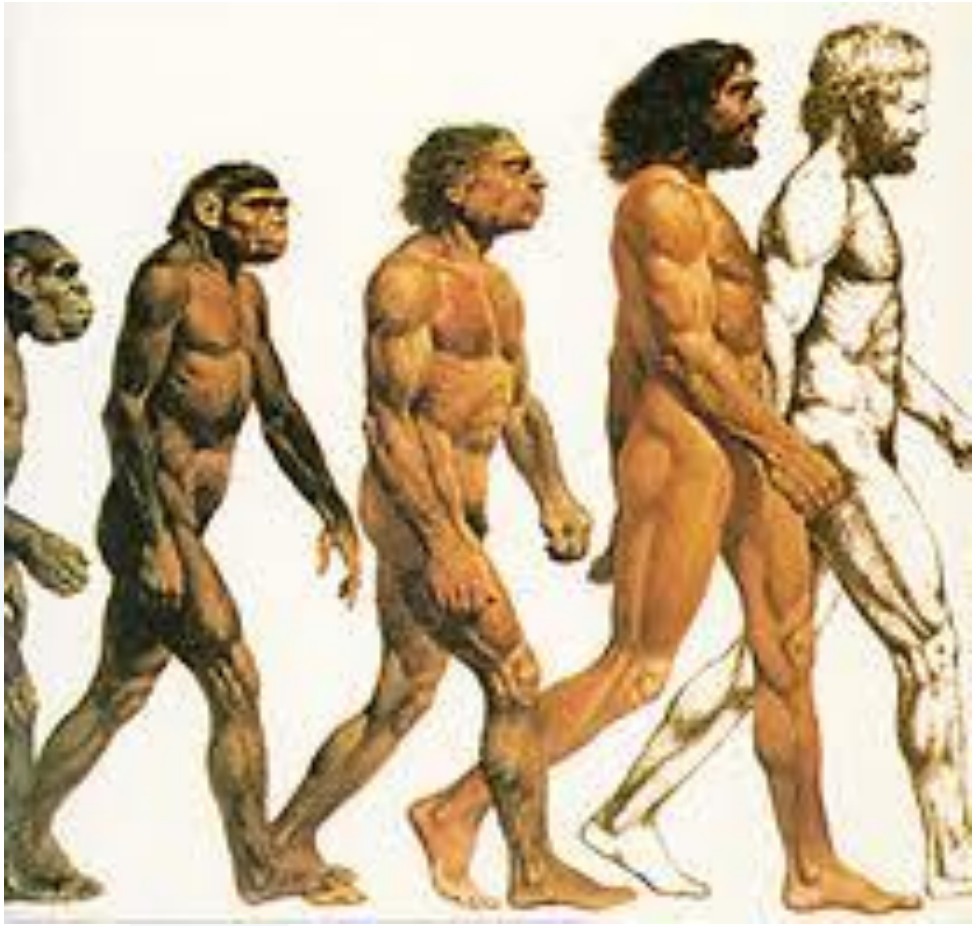

Caesarean section rate in England, 1955 to 2000
Percentage of deliveries by caesarean section
25
20
15
10
5
0
Total
Elective
1955
1965
1975
1985
1995
2000
Year
No data for 1985-9
Source: Department of Health

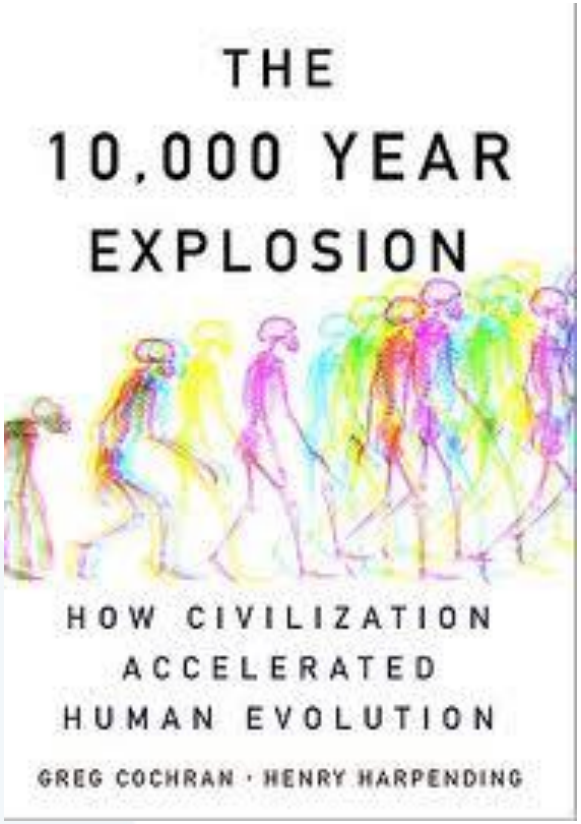

C section rates
???
50
40
30
20
10
0
how many
1970s
...
1980s
...
1994
2002
2003
now
soon
when



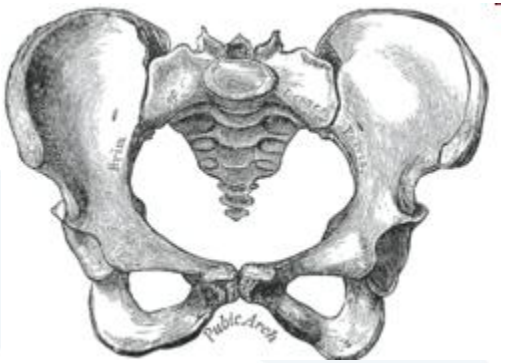


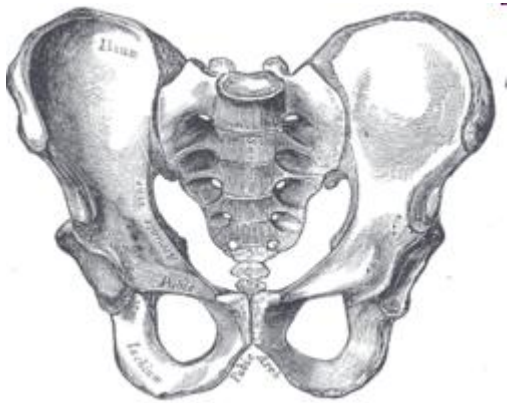
Charles Darwin, 1809 -1882

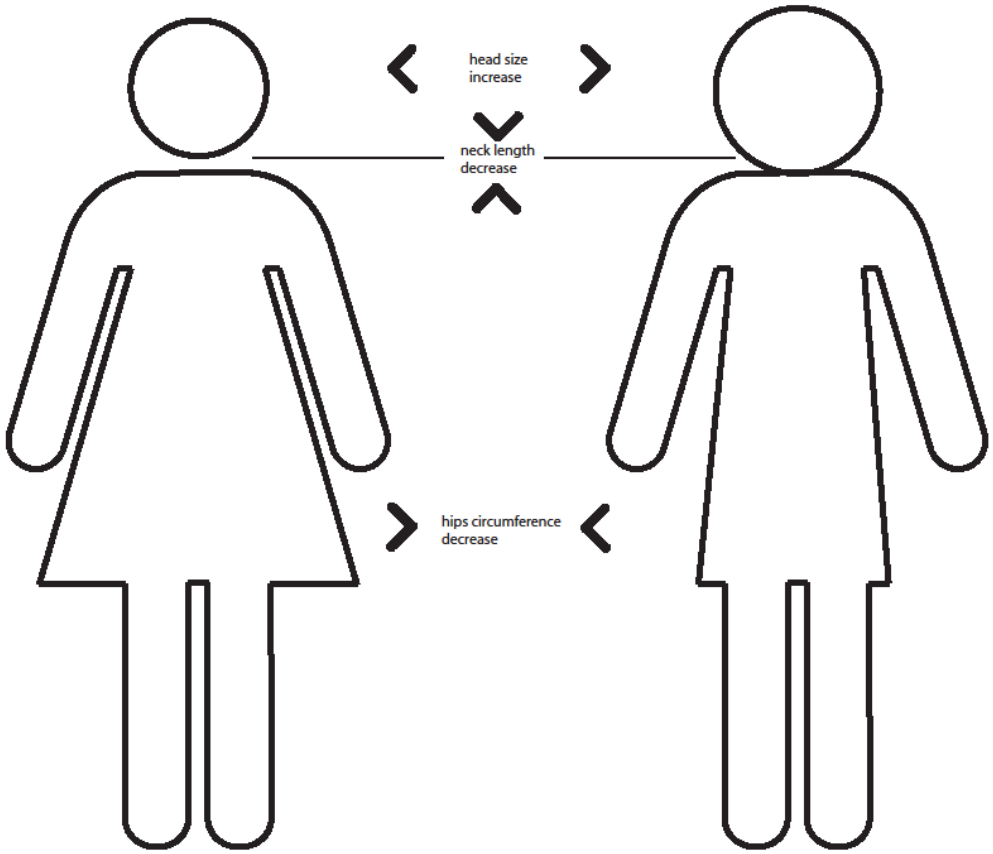




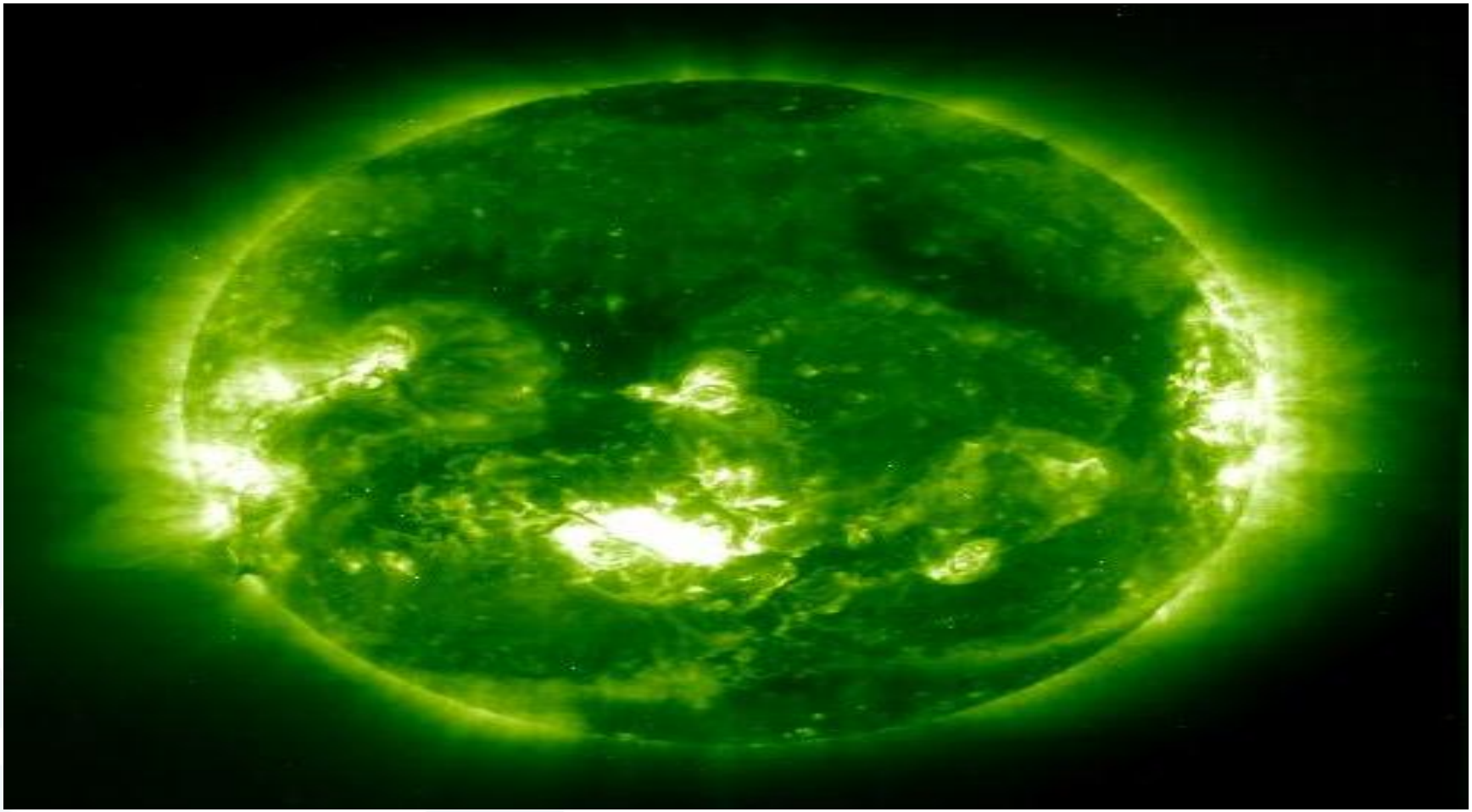
Resistance to malaria. Blue eyes. Lactose tolerance. What is common to them all? They have emerged only in the last 10,000 years.

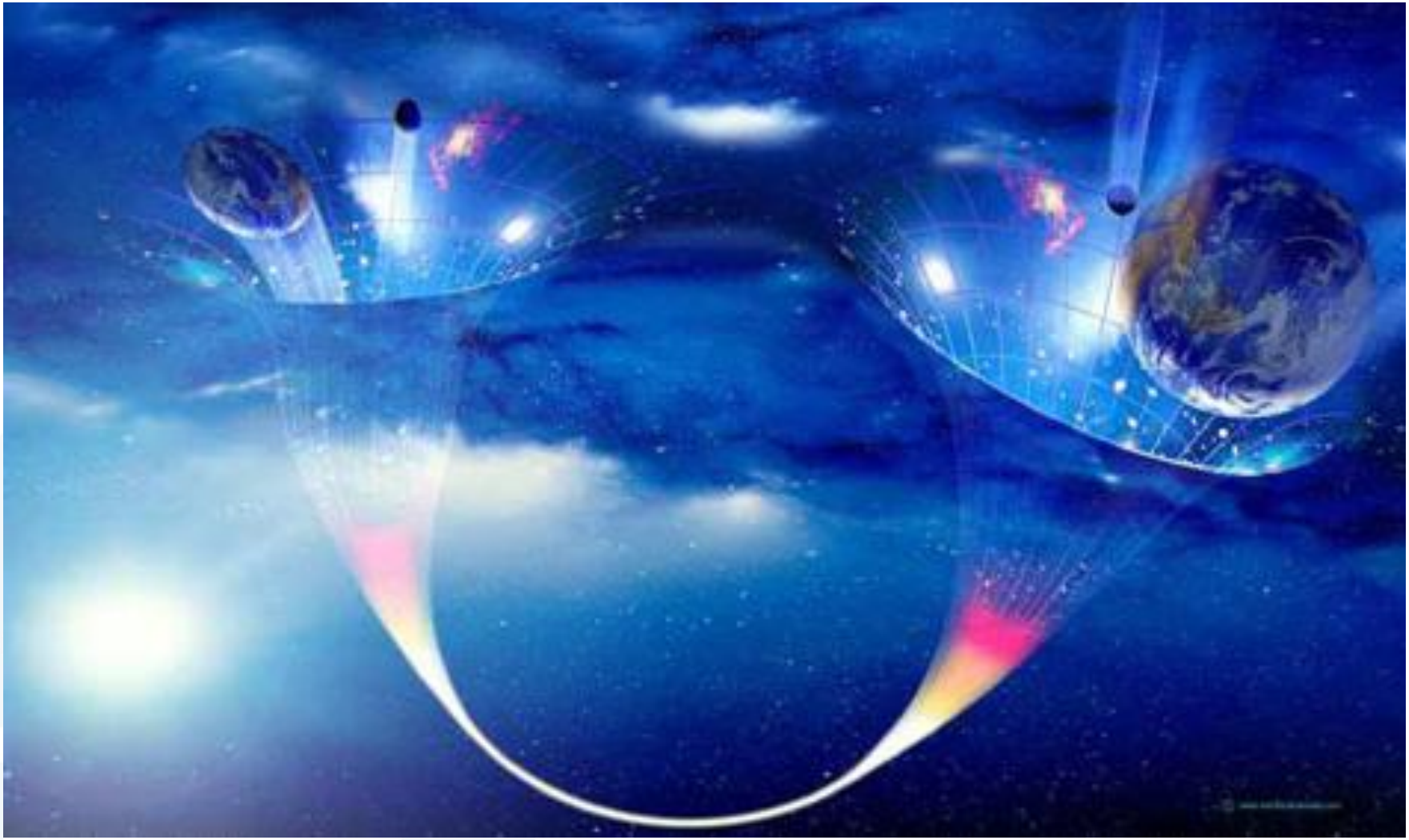

Public Arch





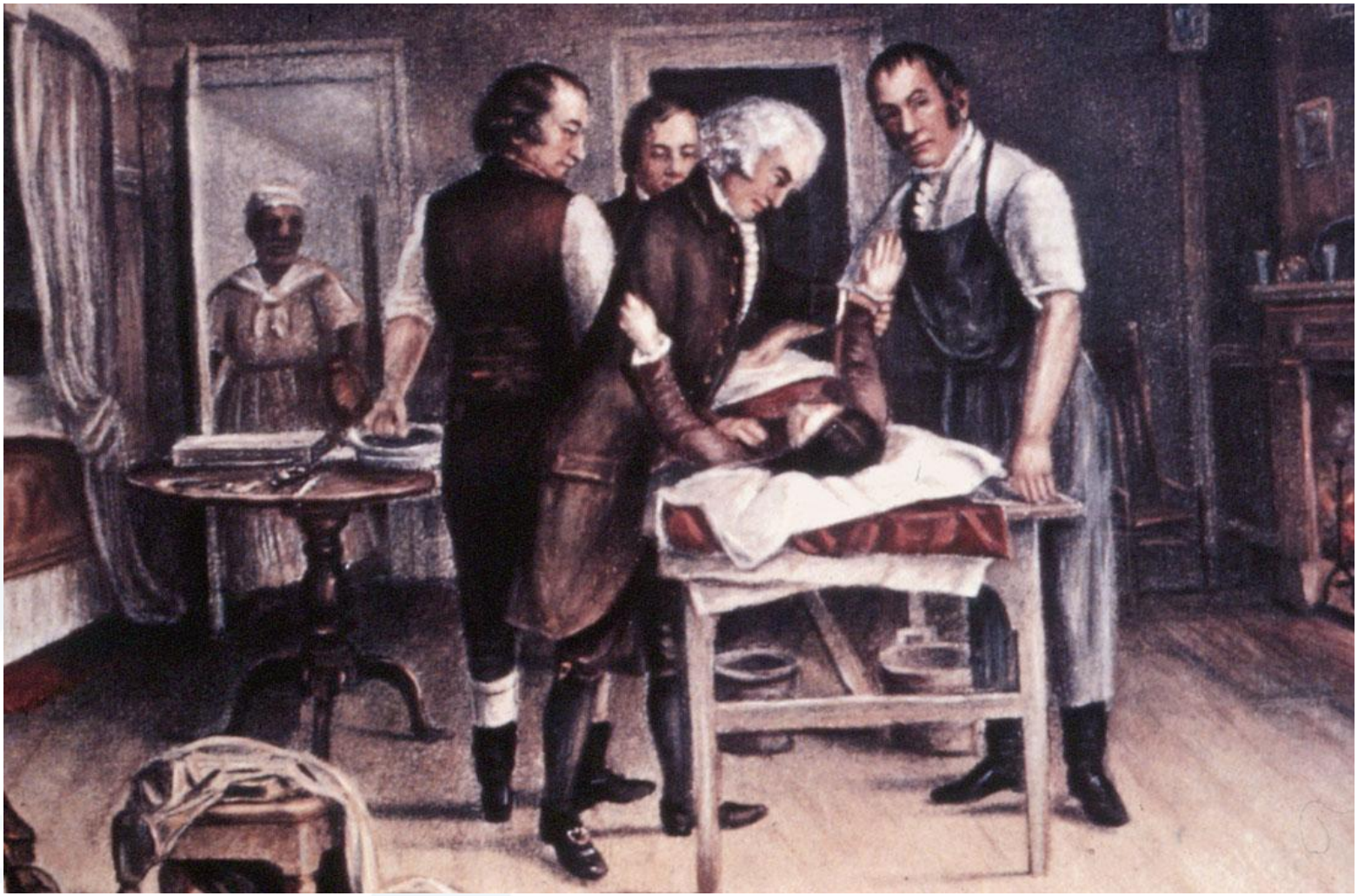
Anno 2012 **Anno 12000**



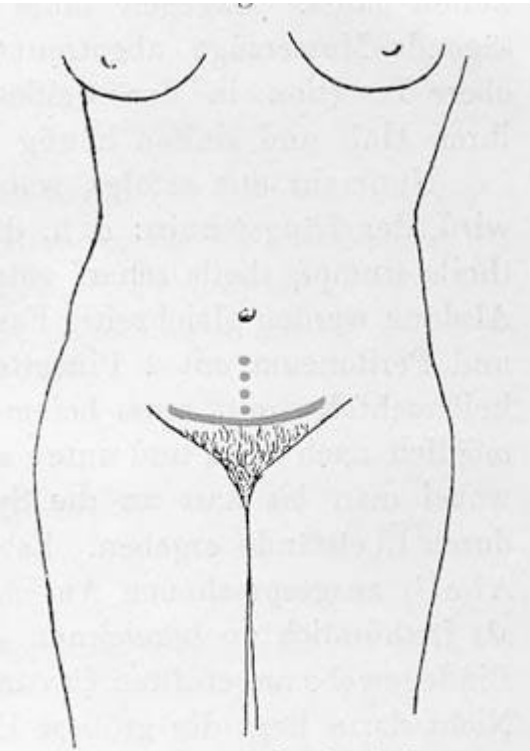


What is the hardest material in the world?

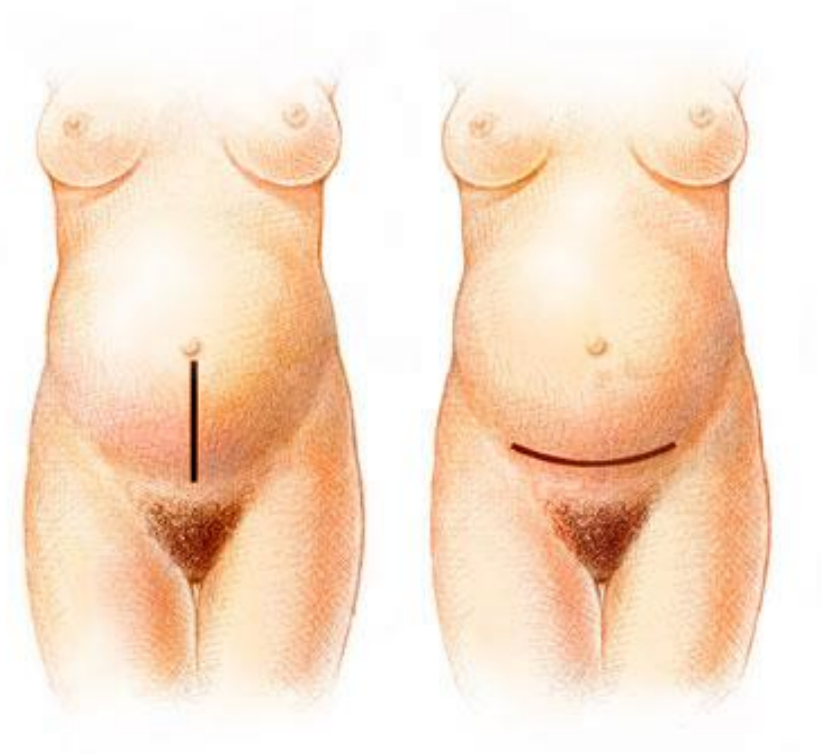
The second hardest material in the world…



Ephraim McDowell 1771 - 1830



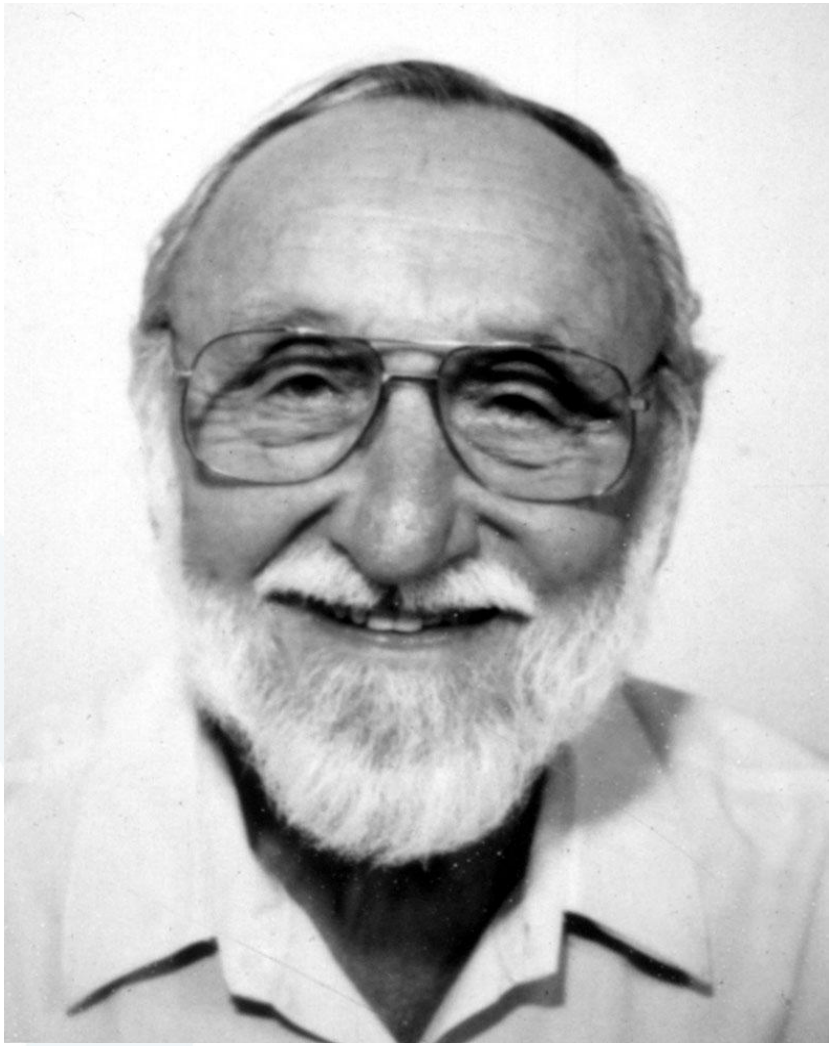
Schema der Schnittführung.
Die bogenförmige transversale Linie bedeutet den Schnitt durch Haut, Unterhautfettgewebe und die Fascien, die punktirte Linie den Schnitt durch die zwischen den Musculi recti gelegene Bindegewebsschicht, die Fascia transversa und das Peritoneum.



ABDOMINAL WOUND DEHISCENE AFTER C-SECTION (vertical vs. Pfannenstiel)

	Vertical	Transverse
No.	1635	540
Dehiscence	48	2
Rate	2.94 %	0.37 %

Mowat J, Bonnar J. Br Med J 1971; 2 (756): 256-257



Prof. S. J. Joel-Cohen 1913 - 2002

POST-OPERATIVE RECOVERY RELATED TO INCISION IN C/S

	Modified Joel-Cohen	Pfannenstiel	p
Number of cases	121	124	
Febrile morbidity (%)	7.4	18.6	< 0.05
Duration of analgesics requirement (hours)	16.6	20.1	NS
Doses of analgetics given	2.9	3.3	NS

Stark M, Finkel A. Eur J Obstet Gynecol Reprod Biol 1994; 53 (2): 121-122

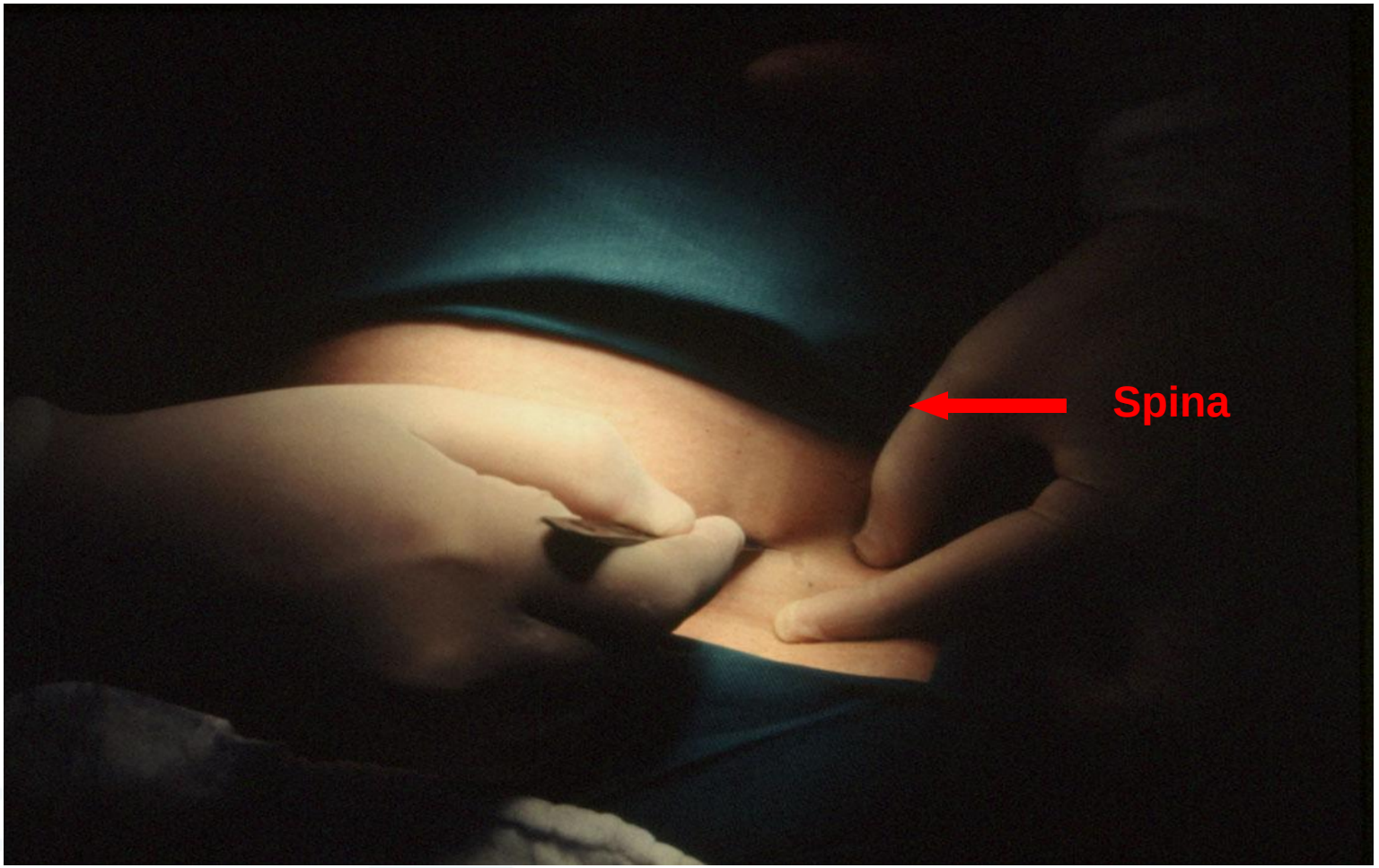
Every step
should be analyzed for its necessity
and for its optimal way of
performance,
even in “trivial” aspects,
such as:

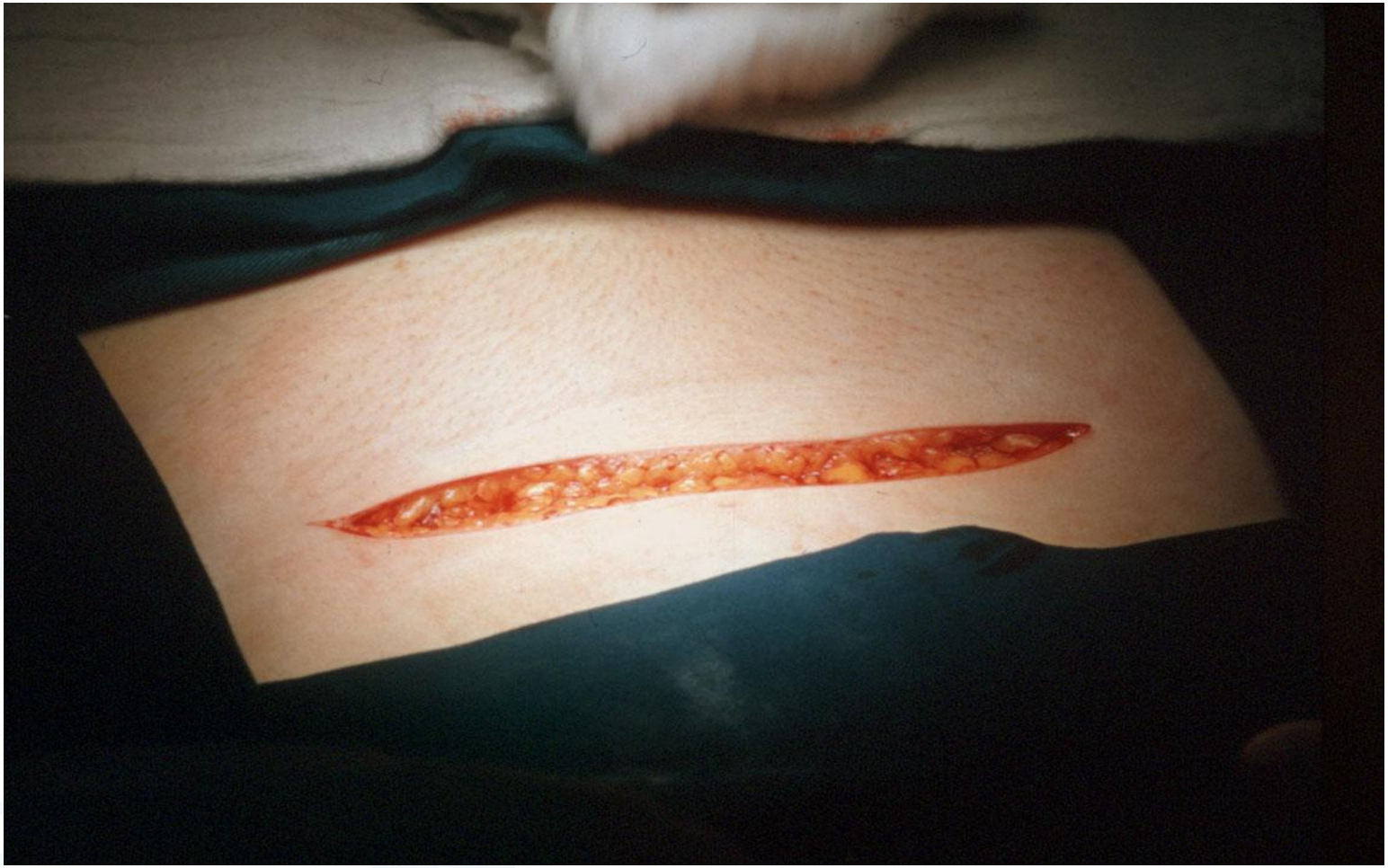
ON WHICH SIDE OF THE PARTURIENT SHOULD THE SURGEON STAND?

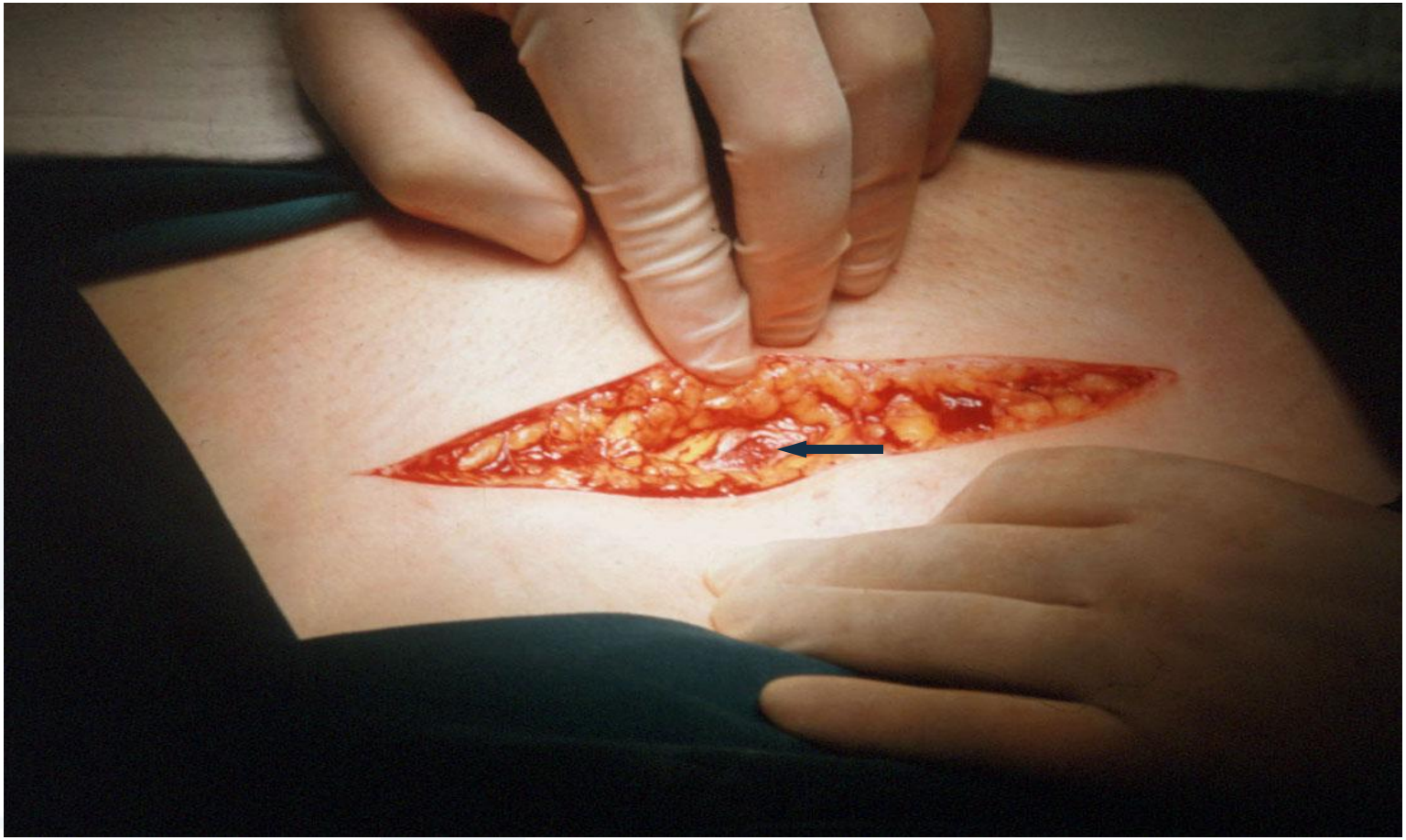
- The right-handed surgeon should stand on the right side of the table, because:

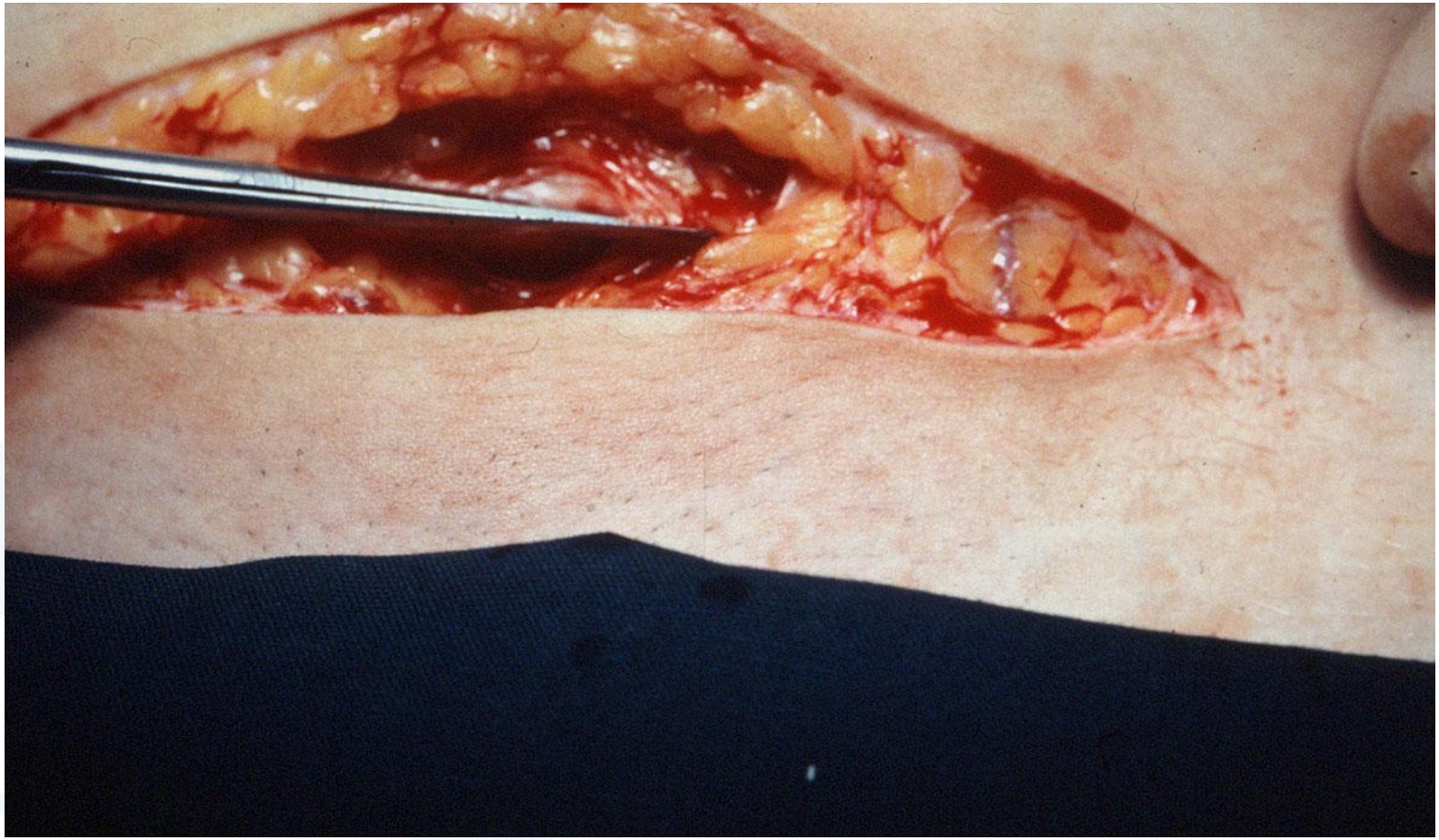
- It is easier and more comfortable to deliver the baby with the right hand

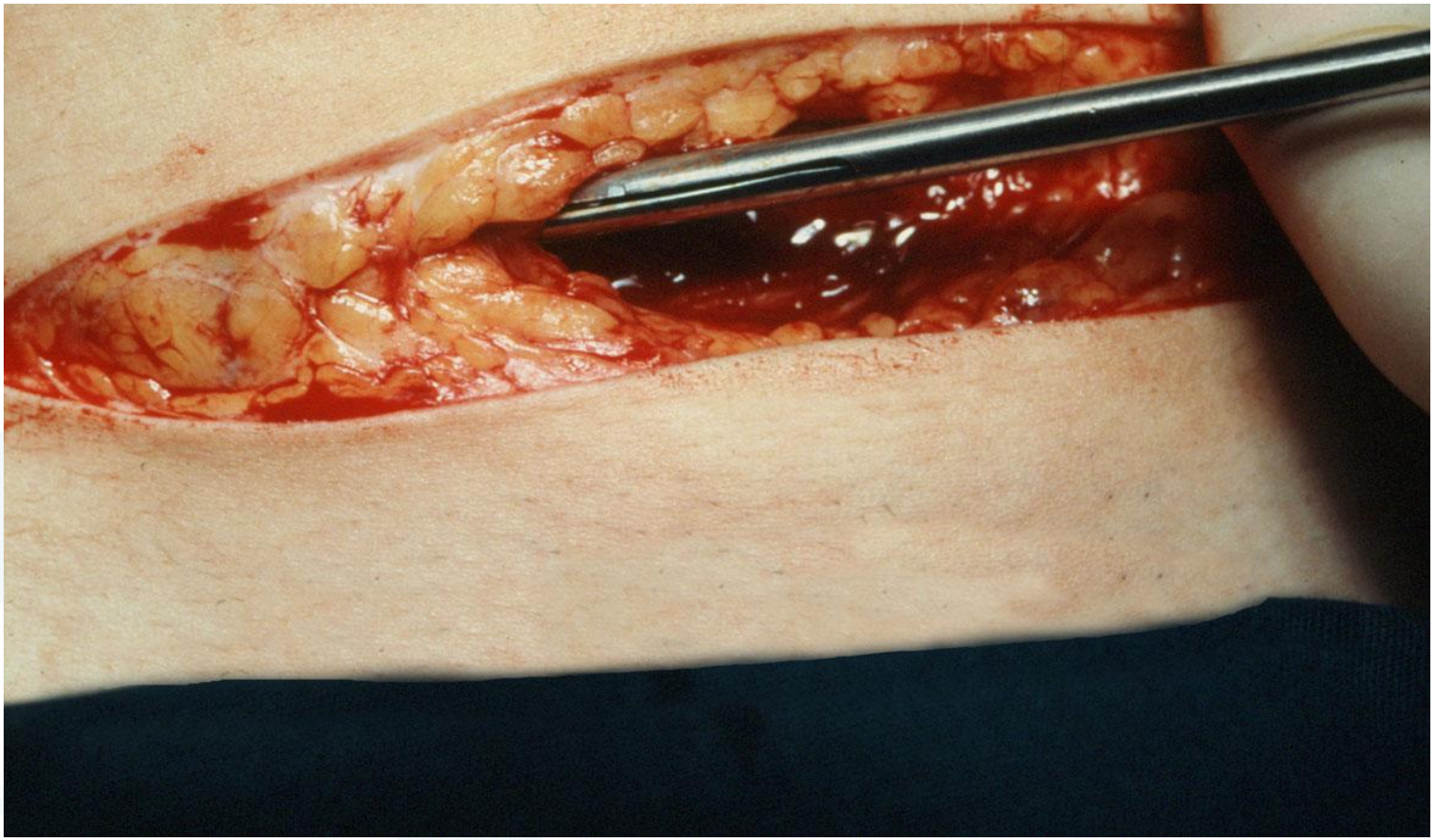
- The needle points away from the bladder while stitching the uterus

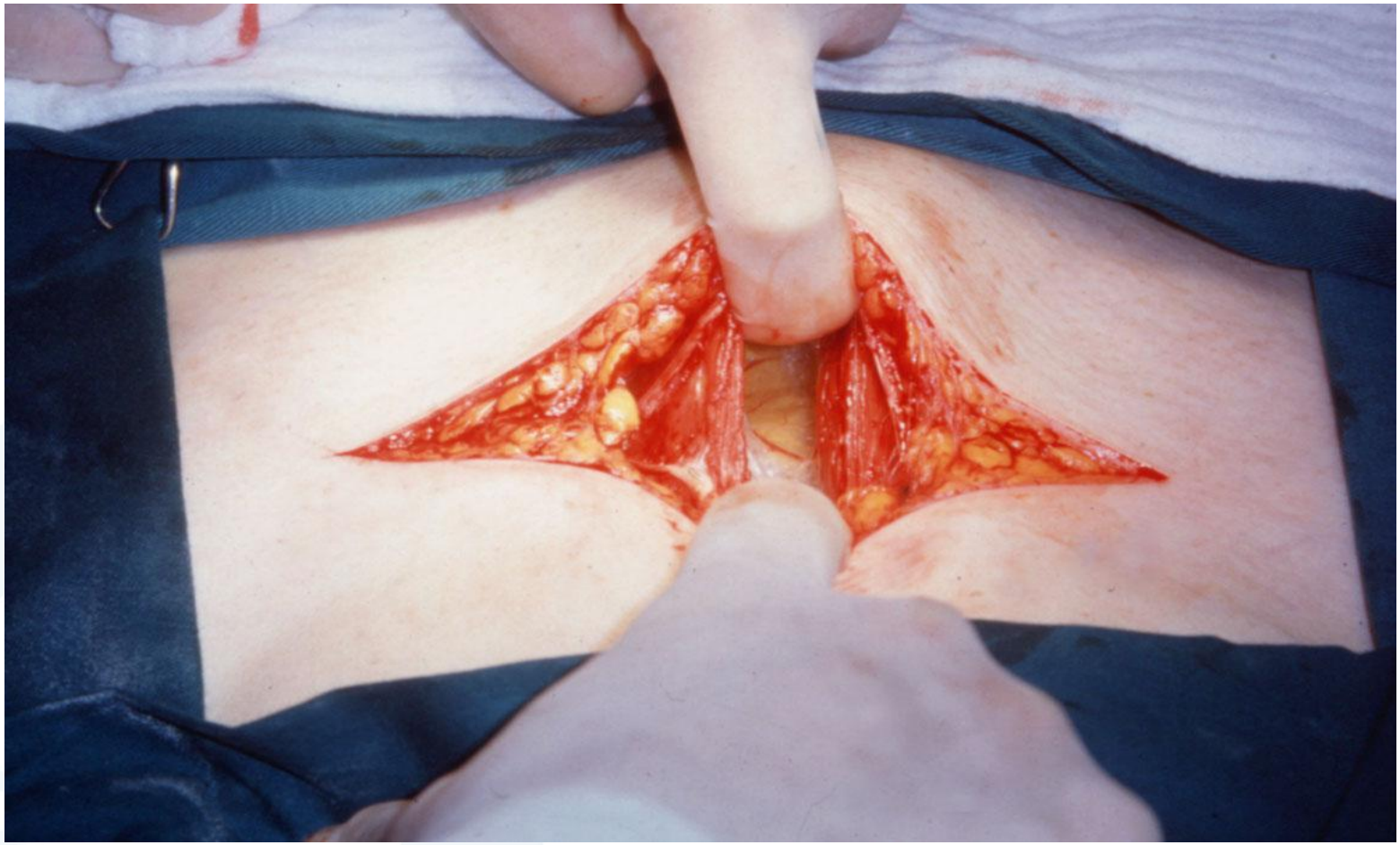

Spina

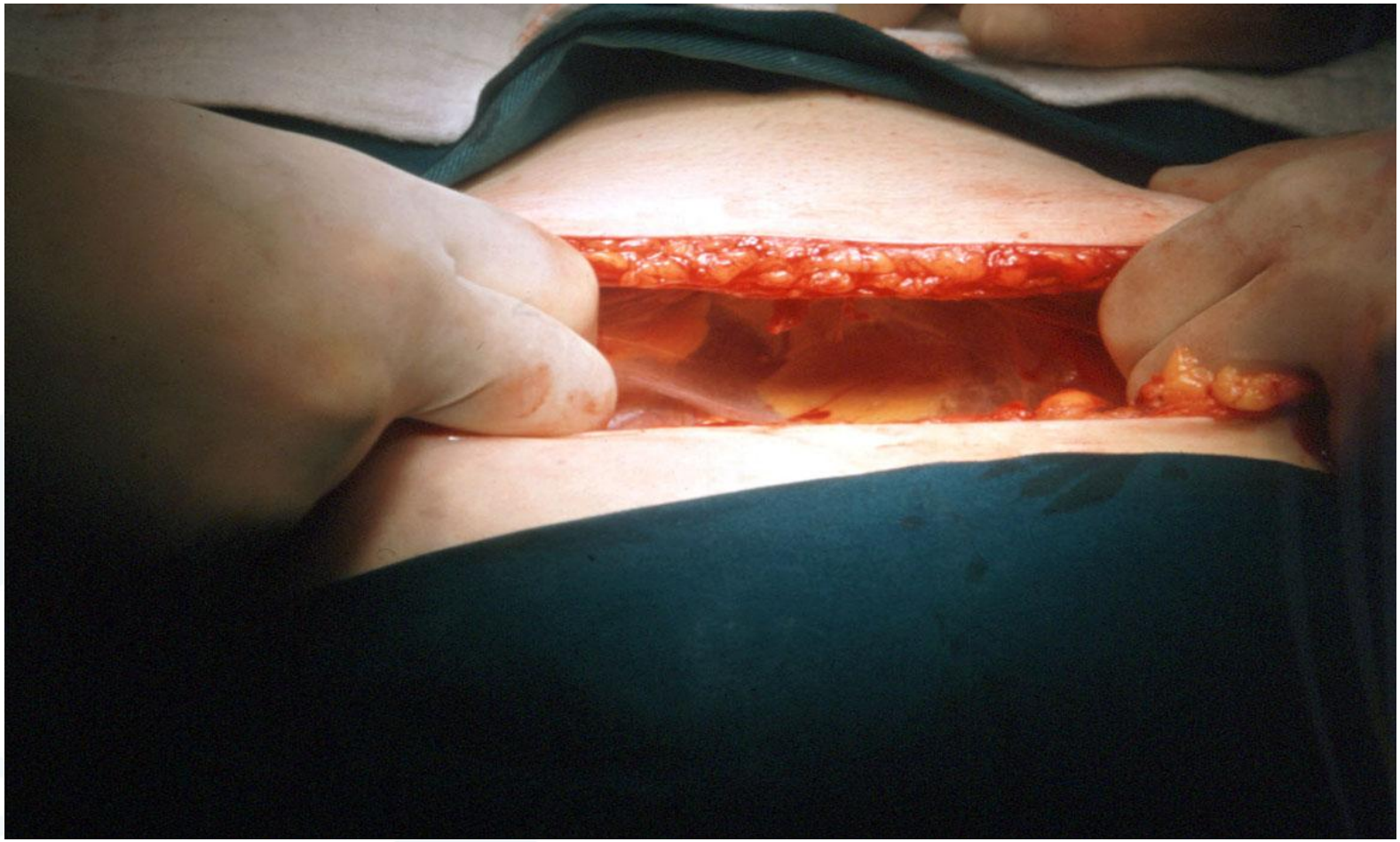


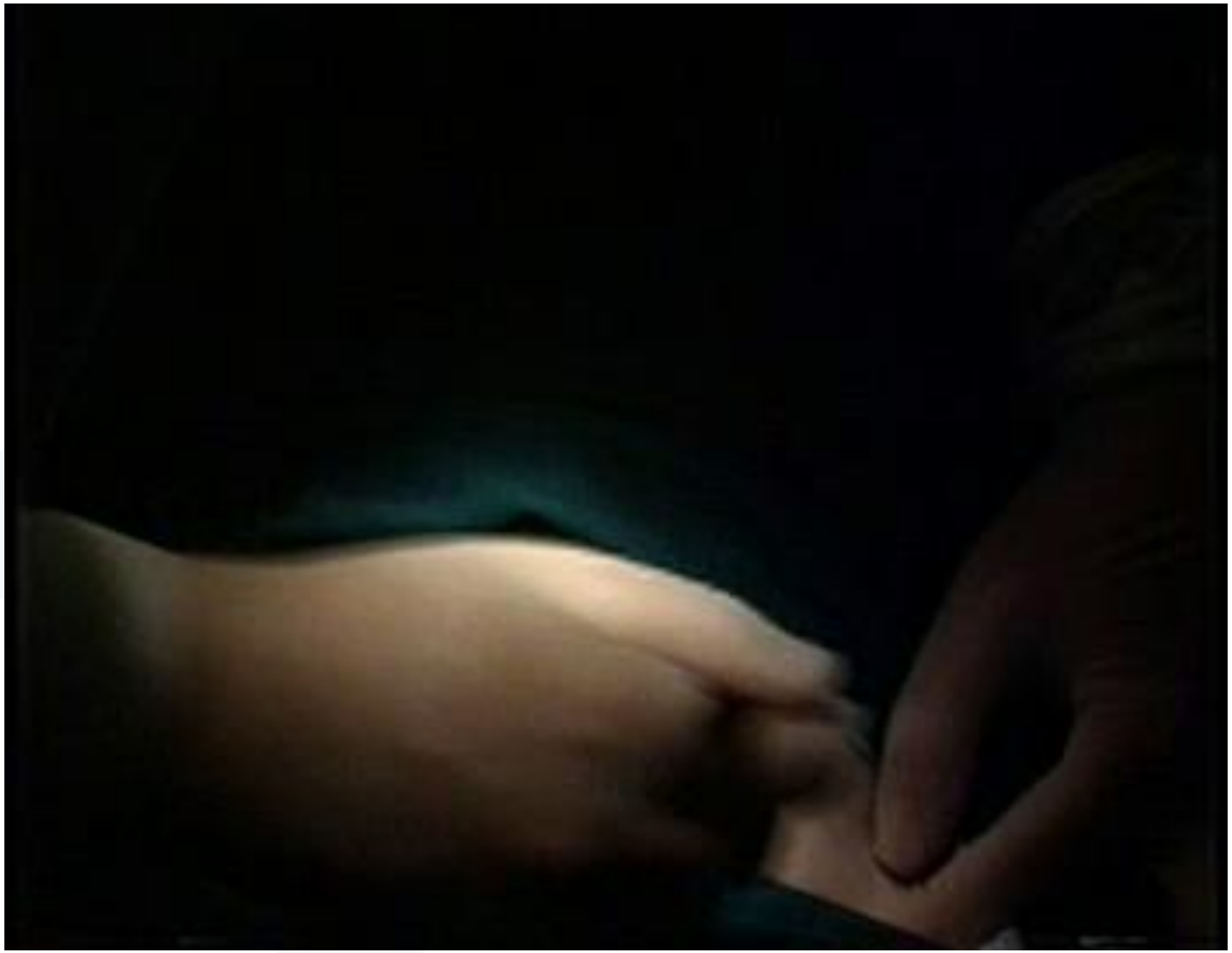


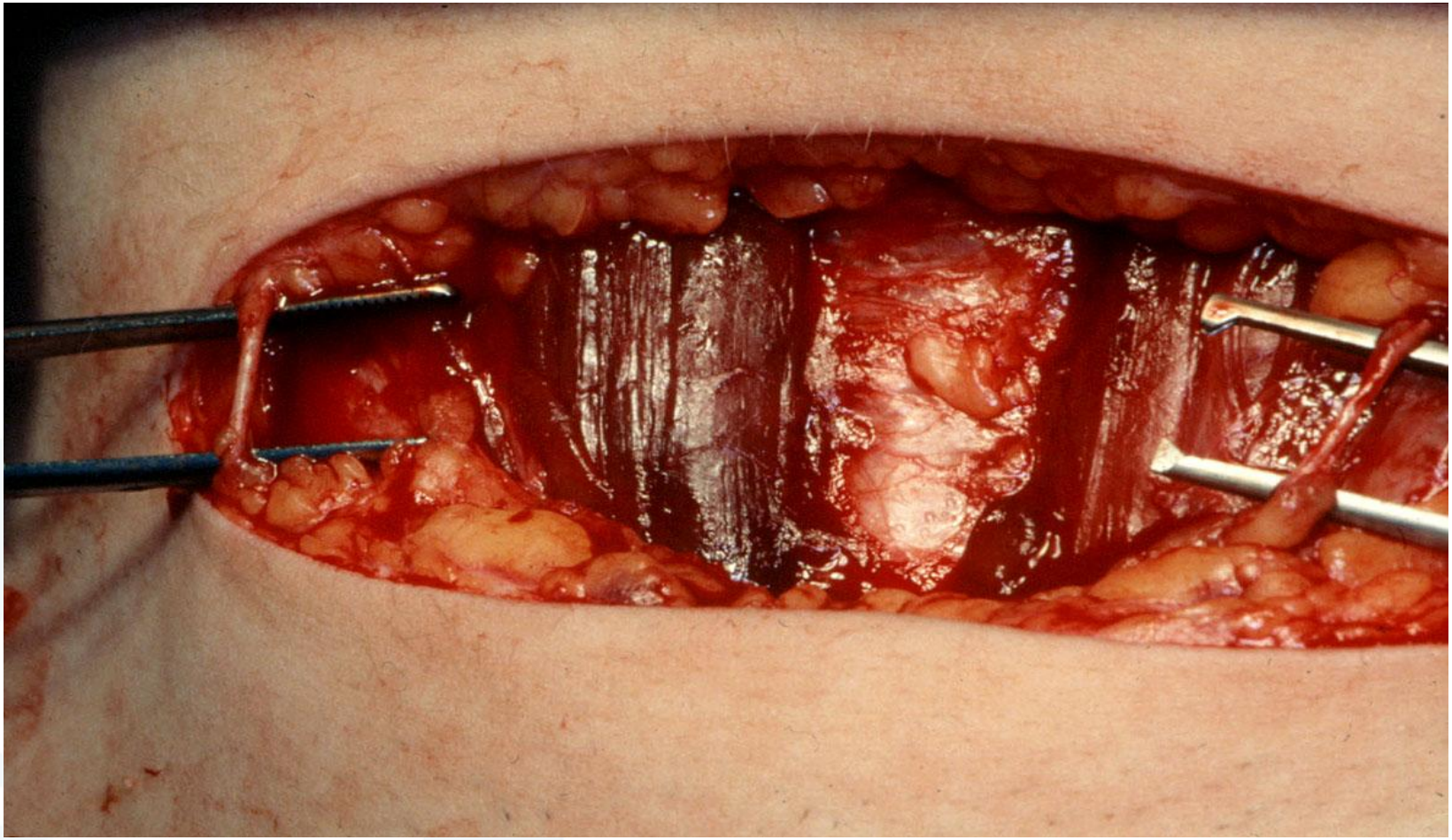




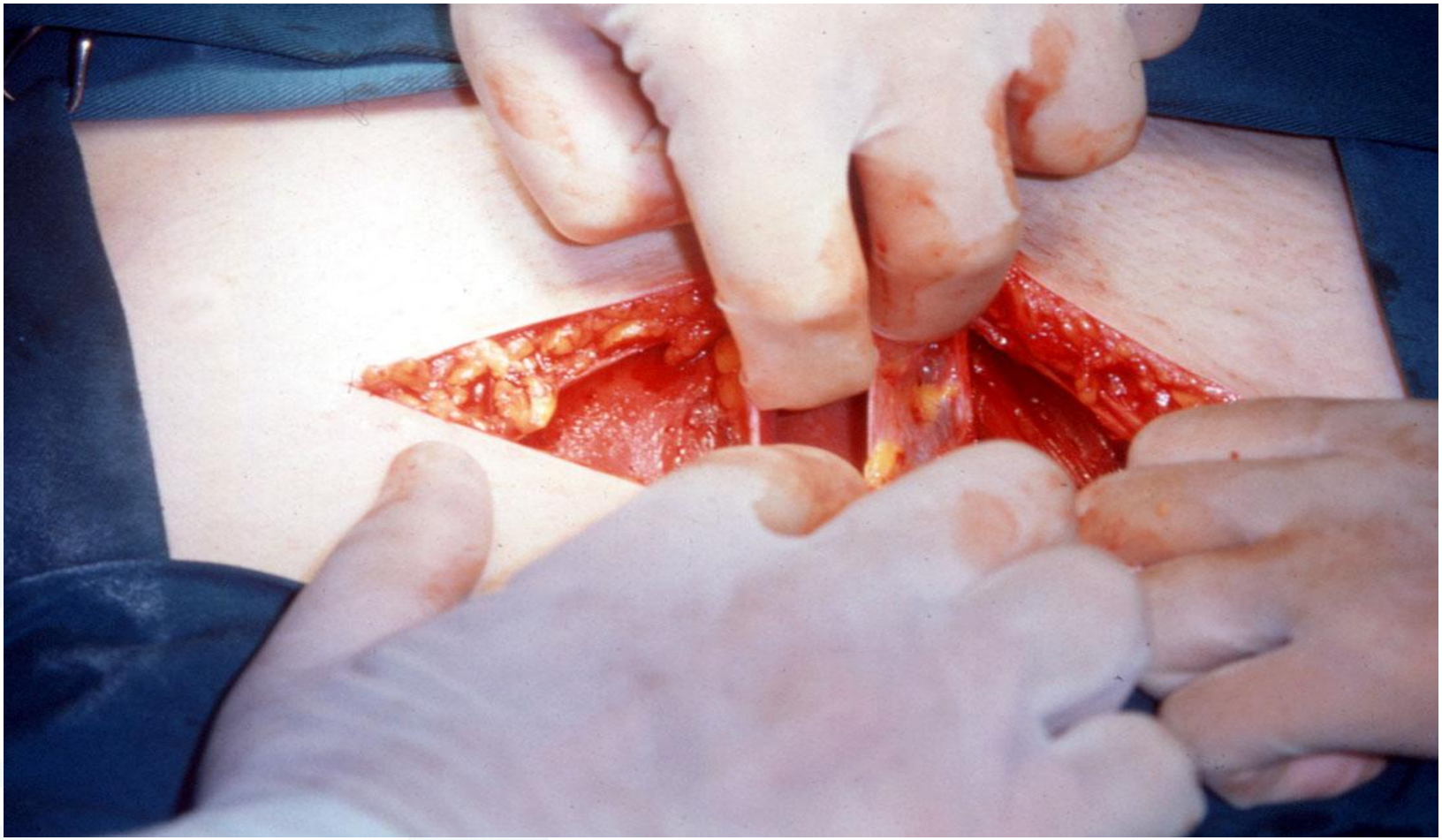








OPENING PERITONEUM BY BI-DIGITAL REPEATED STRETCHING



In the era of ‘non-closure of the peritoneum’, how to open it?

Stark M, Acta Obstet Gynecol Scand, 2009, 88(1): 119.

THE RATIONAL OF WHY NOT TO USE ABDOMINAL PACKS

- Fewer adhesions formed

Why do surgical packs cause peritoneal adhesions ?

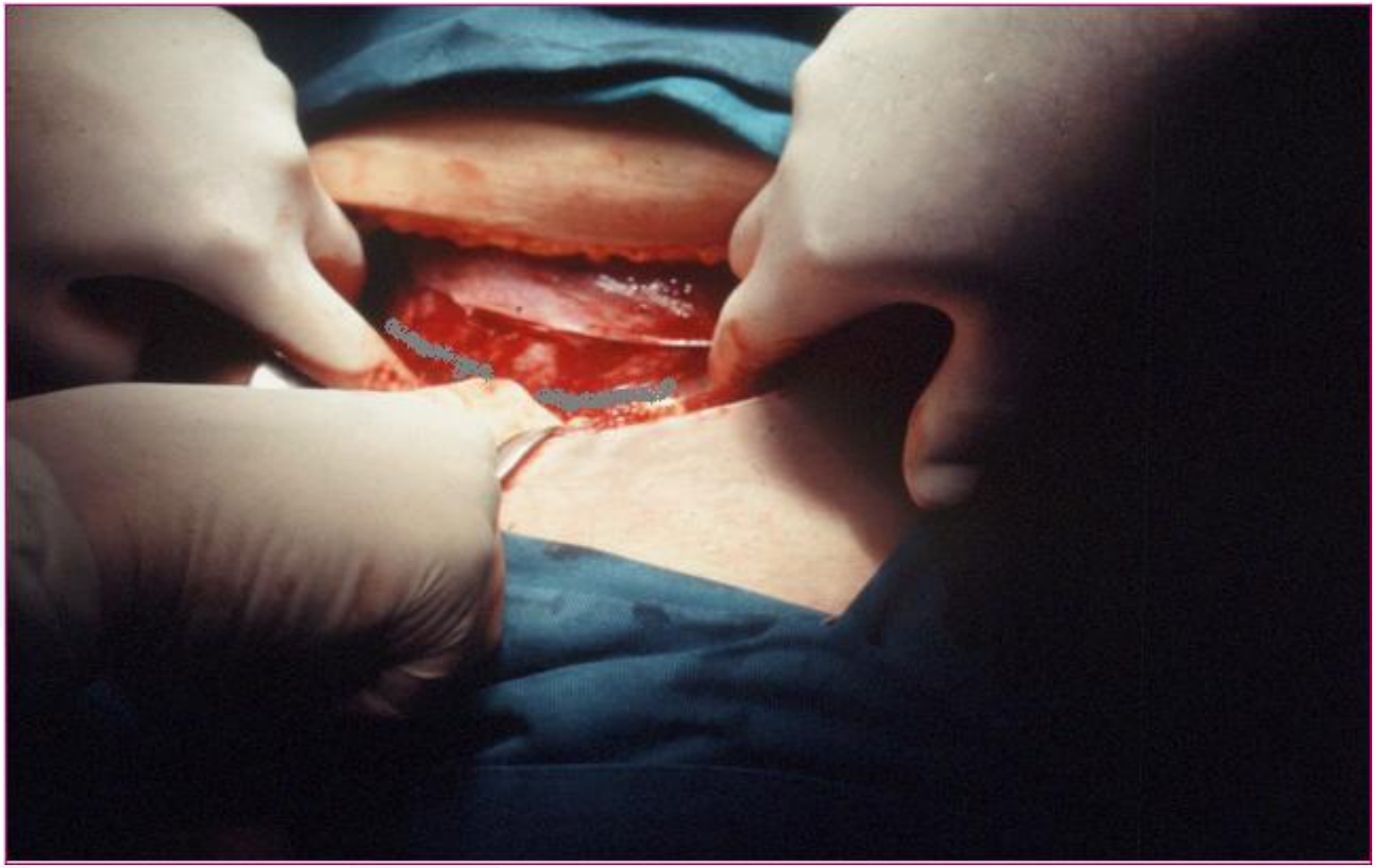
Down RH, Whitehead R, Watts JM. Aust N Z J Surg 1980; 50 (1): 83-85

- Enables bacteriostatic action of the amniotic fluid

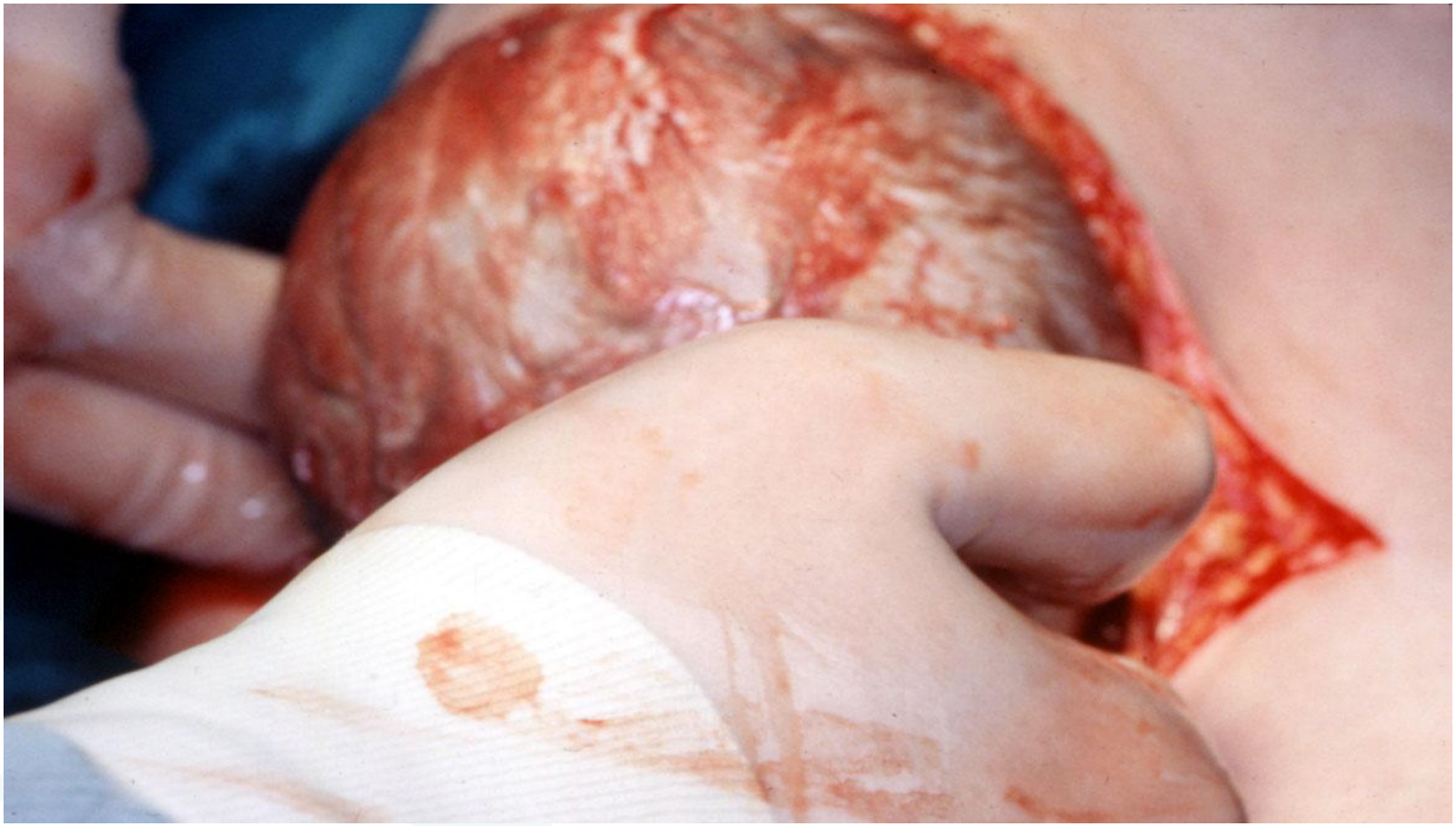
Enhancement of the antibacterial property of amniotic fluid by hyperthermia.

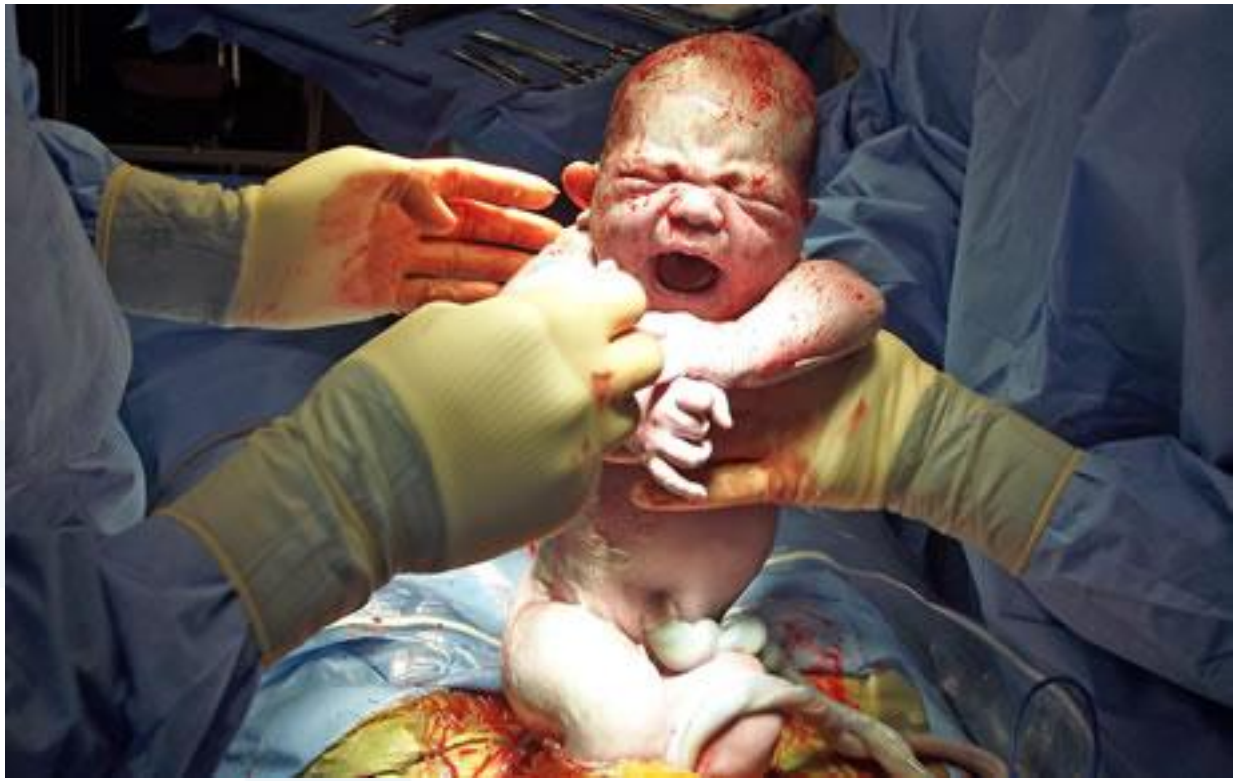
Larsen B, Davis B. Obstet Gynecol 1984; 63 (3): 425-429

J.M. Munro Kerr 1868 – 1960



Lower segment transverse incision (1924)





EXTERIORIZATION OF THE UTERUS:

Advantages:

- prevents damage to abdominal organs while stitching
- enables manual contraction of the uterus, therefore less bleeding
- makes inspection of the ovaries easier

Disadvantage:

- might cause pressure and pain when the operation is under epidural anaesthesia

THE MISGAV LADACH METHODE FOR CESAREAN SECTION COMPARED TO THE PFANNENSTIEL METHOD

	Misgav Ladach	Traditional	p
Duration of operation (min)	12.5	26	< 0.001
Estimated blood-loss (ml)	**448**	**608**	**0.017**
Dosage of analgetics (injections)	4.2	5.4	0.017
Average Hospital Stay (days)	4	4	N.S.

Darj E, Nordström ML. Acta Obstet Gynecol Scand 1999; 78: 37-41

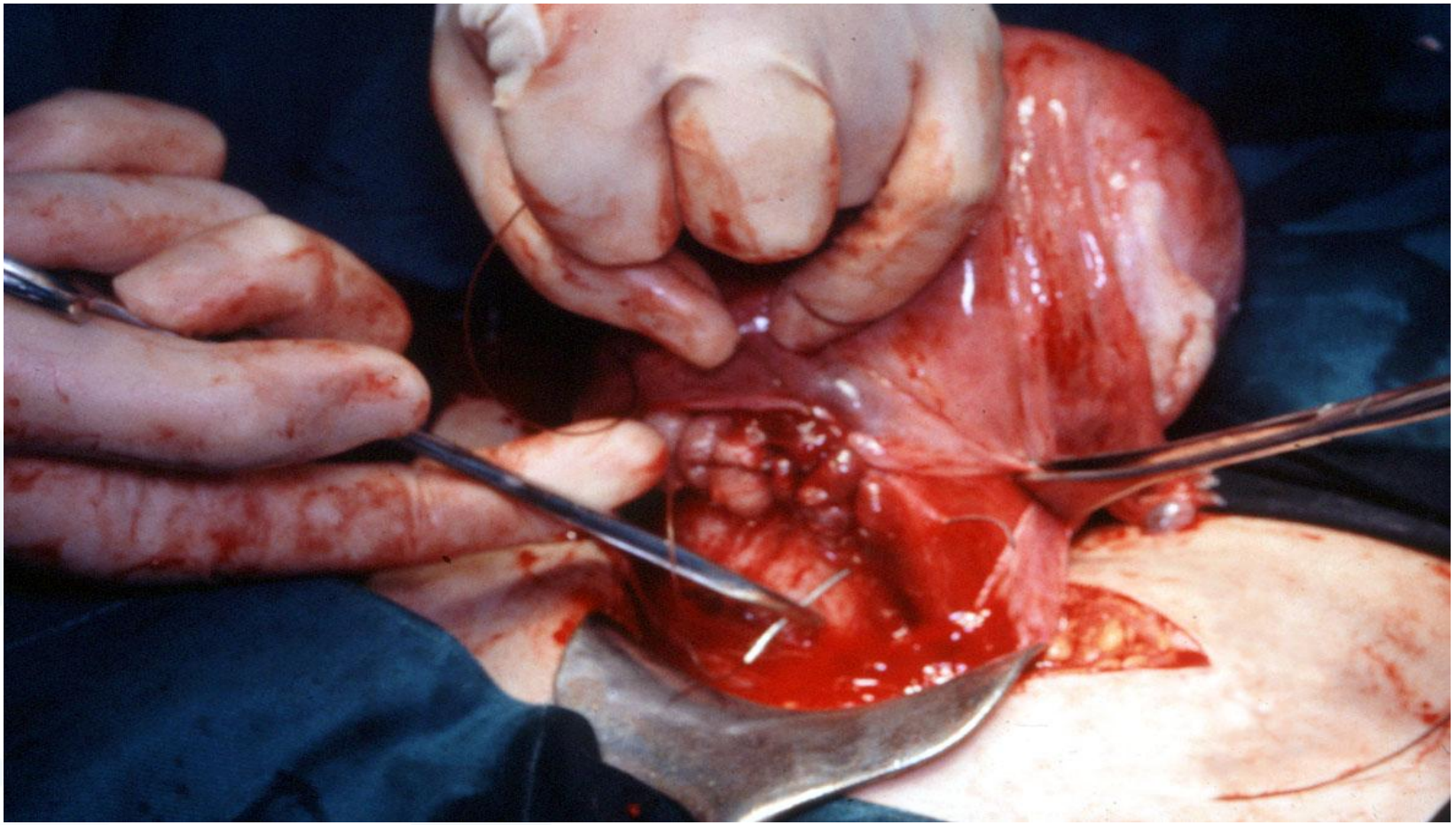
SUTURING THE UTERUS IN ONE LAYER:

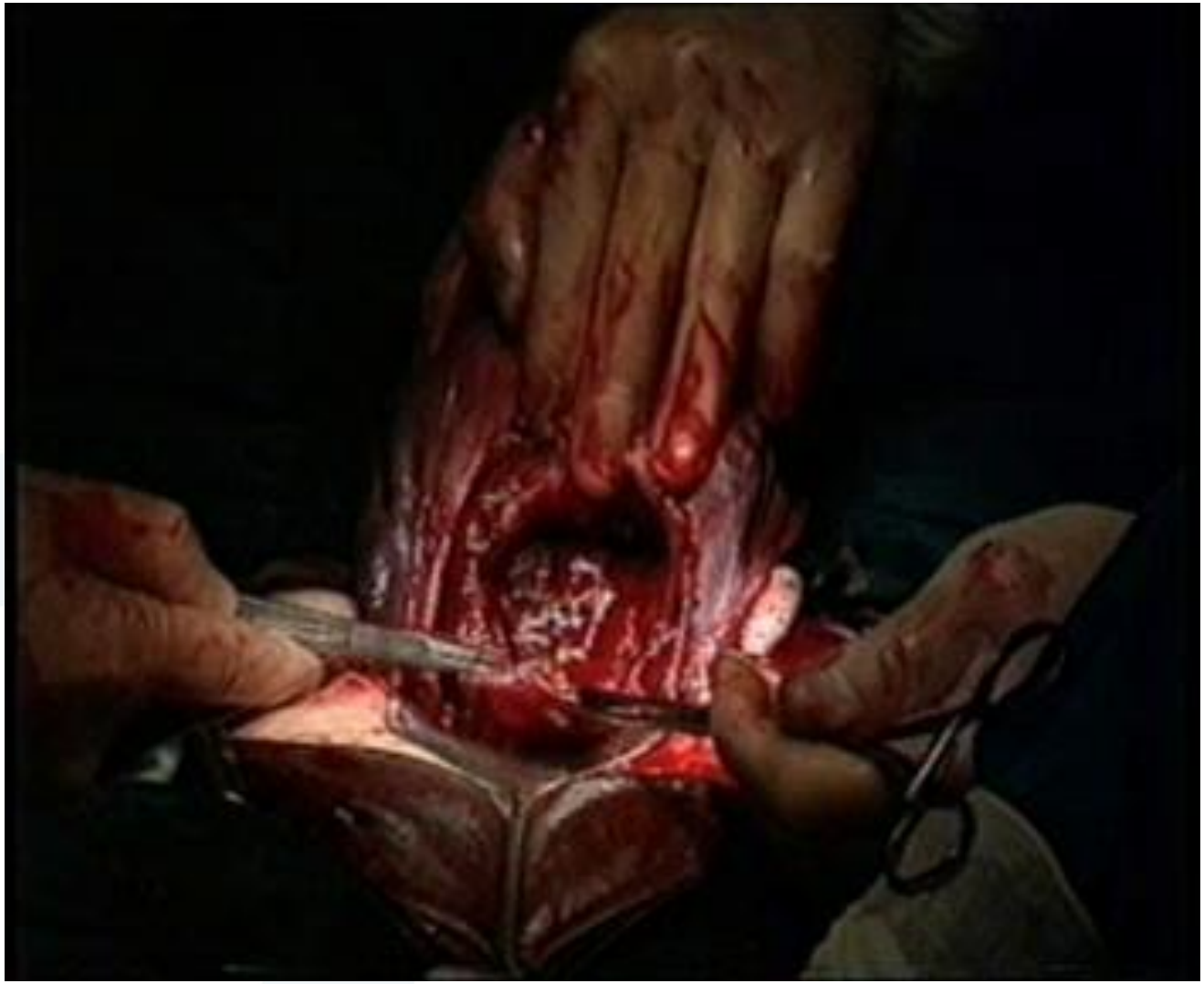
- causes less sacculations
- makes stronger scars

Csucs L, Kott I, Solt I. Zentralbl Gynäkol 1972; 94 (34): 1121-1126

Hauth JC, Owen J, Davis RO. Am J Obstet Gynecol 1992; 167 (4 Pt 1): 1108-1111

Jelsema RD, Wittingen JA, Vander Kolk KJ. J Reprod Med 1993; 38 (5): 393-396





VAGINAL DELIVERY AFTER MISGAV-LADACH CESAREAN SECTION – IS THE RISK OF UTERINE RUPTURE ACCEPTABLE?

During VBAC of 448 patients:

- 5.28% (16/303) had a uterine rupture with a previous ML C-Section

- 13.11% (19/145) had a uterine rupture with a previous double-layer suturing

- ($p < 0.05$)

Hudić I, Fatušić Z, Kamerić L et al. J Matern Fetal Neonatal Med. 2010;23(10):1156-9.

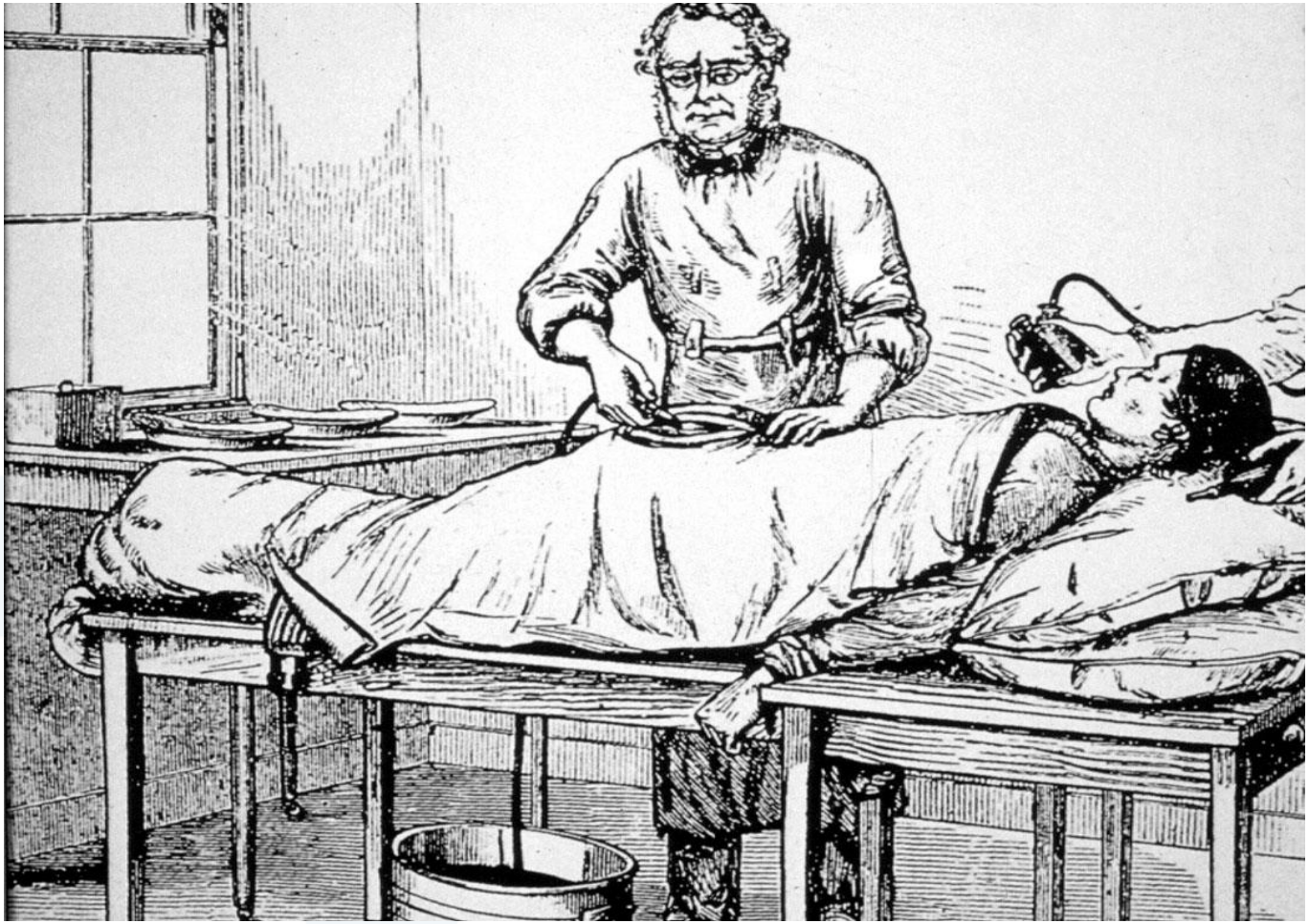
In the second pregnancy, prior single-layer closure was not associated with uterine rupture after a trial of labor (0% vs 1.2%, *P* = .30).

Durnwald C, Mercer B, American Journal of Obstetrics and Gynecology. 2003; 189(4): 925-9.

Optimised meta-analysis should be based on standardised methods

"Only standardized and optimized surgical methods will allow valuable meta-analysis and enable a comparison of surgical outcome in different institutions and by different surgeons."

Stark M. BJOG. 2011;118(6):765-6.



Ether anaesthesia, started 16. October 1846
by William T.G. Morton (Boston, Massachusetts)

- Peritoneum does not heal by approximation of its edges
- New peritoneum is formed within 24 – 48 h from the coelum cells
- Sutures are providing focal points for adhesions

Ellis H. Internal overhealing: the problem of intraperitoneal adhesions. World J Surg 1980; 4: 303-306

ADHESIONS IN REPEATED OPERATIONS

	No.	Adhesions	%
Peritoneum previously left open	16	1	6.3
Peritoneum closed previously	147	35	23.8

Stark M. World J Surg 1993; 17 (3): 419

Royal College of Obstetricians and Gynaecologists

Setting standards to improve women's health

Guideline No 15
Revised July 2002

PERITONEAL CLOSURE

Non-closure of the parietal peritoneum at caesarean section is recommended because it is associated with lower postoperative febrile morbidity and postoperative use of analgesics.

Non-closure of the visceral peritoneum at caesarean section is recommended because it is associated with significantly shorter operating time and postoperative hospital stay, as well as significantly lower postoperative febrile and infectious morbidity.

LONG-TERM OUTCOMES OF TWO DIFFERENT SURGICAL TECHNIQUES FOR CESAREAN

A total of **124 women** were assessed at repeat cesarean section

Adhesions were found

- in **7 (11.3 %)** of women who underwent the **Stark CS**
- in **22 (35.5 %)** of women who had a **Pfannenstiel-Kerr CS**

(p = 0.0026; relative risk 3.14 [95 % CI, 1.45-6.82])

Nabhan AF, Int J Gynaecol Obstet. 2008; 100 (1): 69-75

INCIDENCE OF POST-OPERATIVE ADHESIONS FOLLOWING MISGAV LADACH CAESAREAN SECTION – A COMPARATIVE STUDY

Table III. Analysis of mean adhesion scores dependent on cesarean section method.

Cesarean section method	Adhesion score		
	Mean	SD	*p*-value
Misgav Ladach	0.43	±0.79	$p < 0.05$
Pfannenstiel-Dörffler	0.71	±1.27	
Misgav Ladach	0.43	±0.79	$p < 0.05$
Low midline laparotomy-Dörffler	0.99	±1.49	
Pfannenstiel-Dörffler	0.71	±1.27	$p = 0.0529$
Low midline laparotomy-Dörffler	0.99	±1.49	

SD: standard deviation.

Fatusic Z, Hudic I, J Matern Fetal Neonatal Med. 2009 22(2):157-60.

EFFECTS OF VISCERAL PERITONEAL CLOSURE ON SCAR FORMATION AT CESAREAN DELIVERY

Table 2
Histologic characteristics of samples taken from serosa to mucosa on the low uterine segment scar[a]

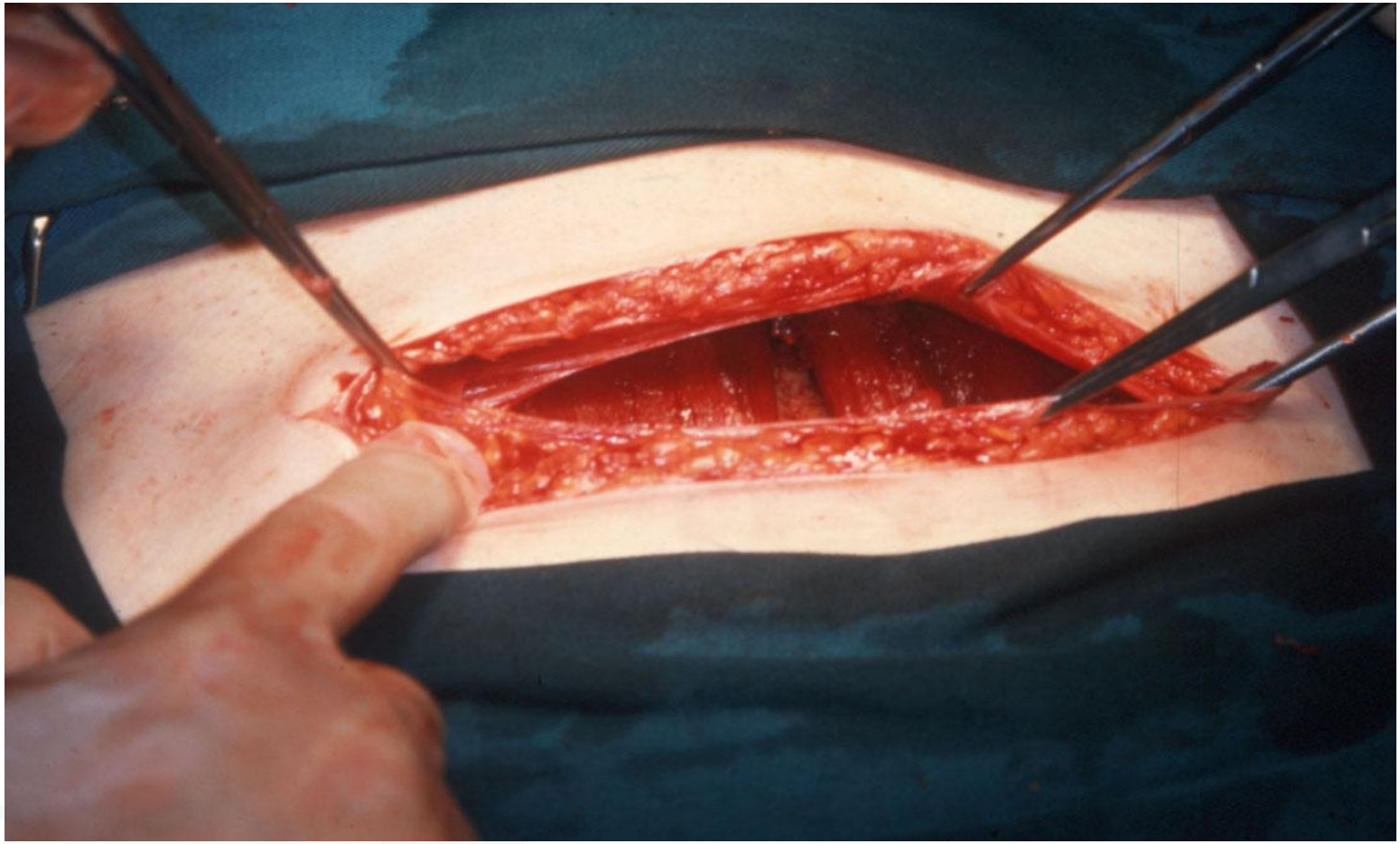
Characteristic	Closure of VP (group 1, $n=54$)	Non-closure of VP (group 2, $n=58$)	P value[b]
Adhesions	31 (57.4)	12 (20.6)	<0.05
Mesothelial hyperplasia	28 (51.8)	8 (13.7)	<0.05
Fibrosis involving mesothelial stroma	26 (48.1)	4 (6.8)	<0.05
Neoangiogenesis of mesothelial stroma	24 (44.4)	7 (12)	<0.05

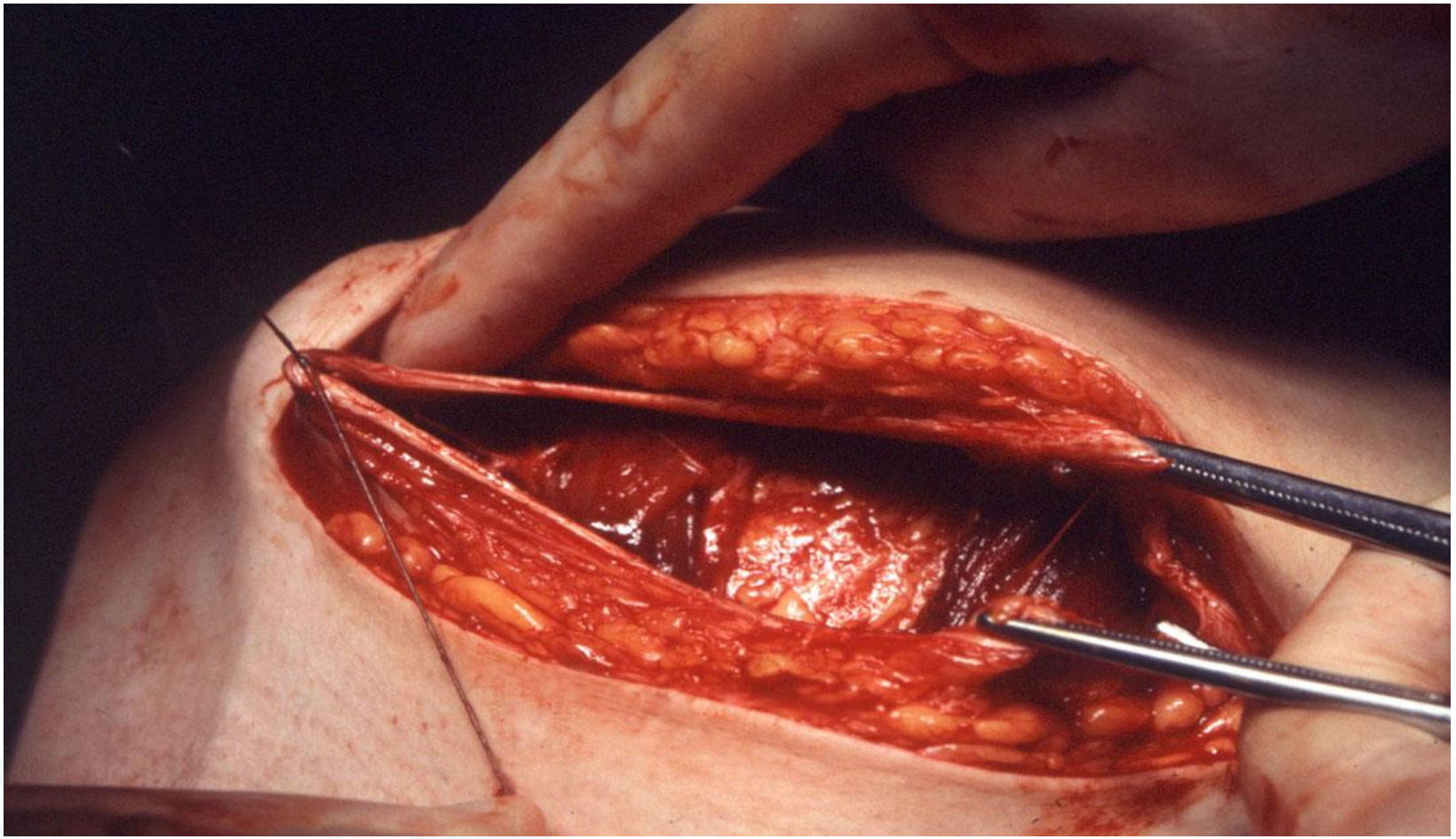
Abbreviations: VP, visceral peritoneum.

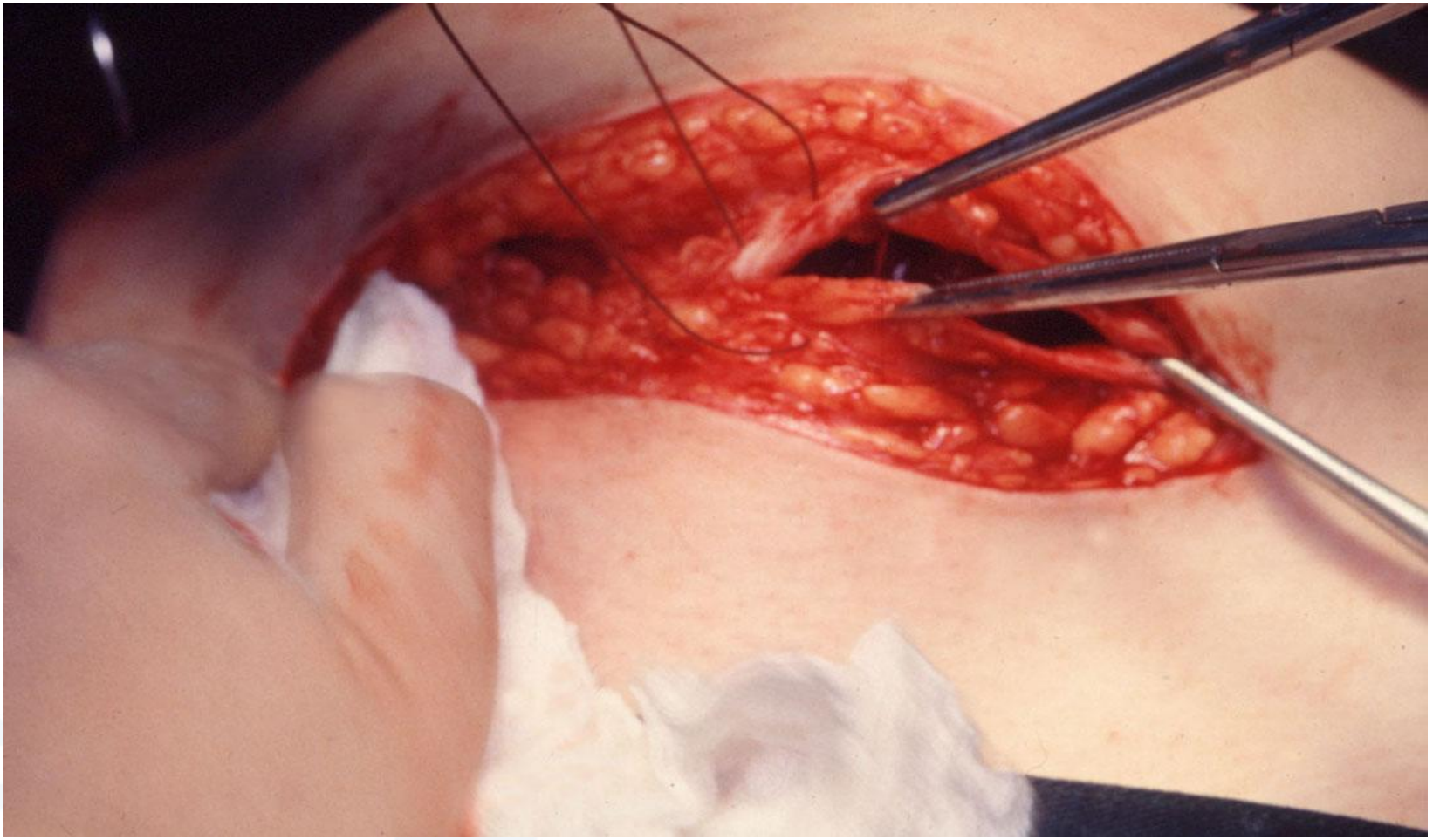
[a] Values are given as number of patients (percentage).

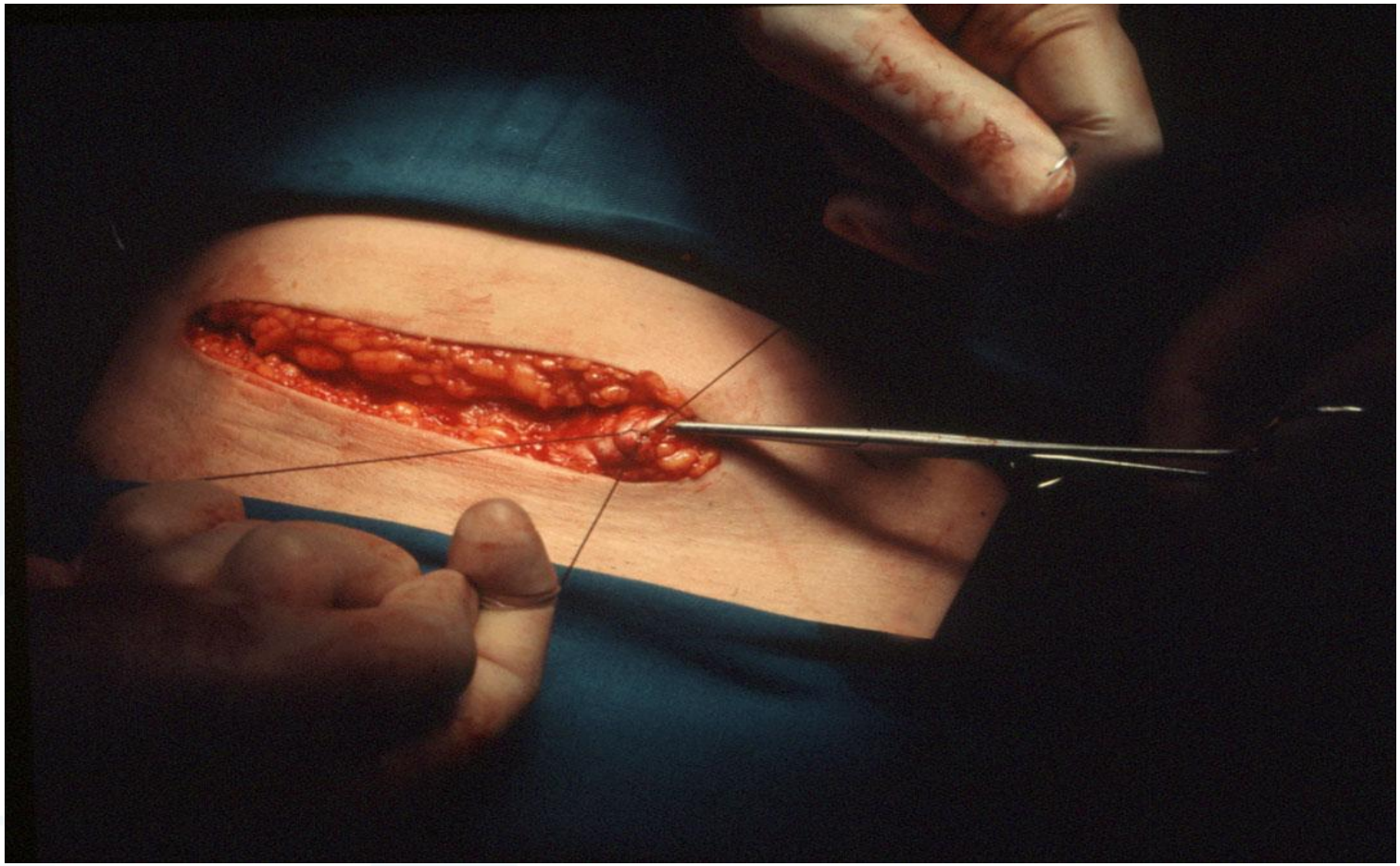
[b] For statistical analysis, differences among the percentages of positive patients were assessed using the χ^2 test.

Malvasi A, Tinelli A, Farine D, Rahimi S, Cavallotti C, Vergara D, Martignago R, Stark M, Int J Gynaecol Obstet 2009 Feb 19



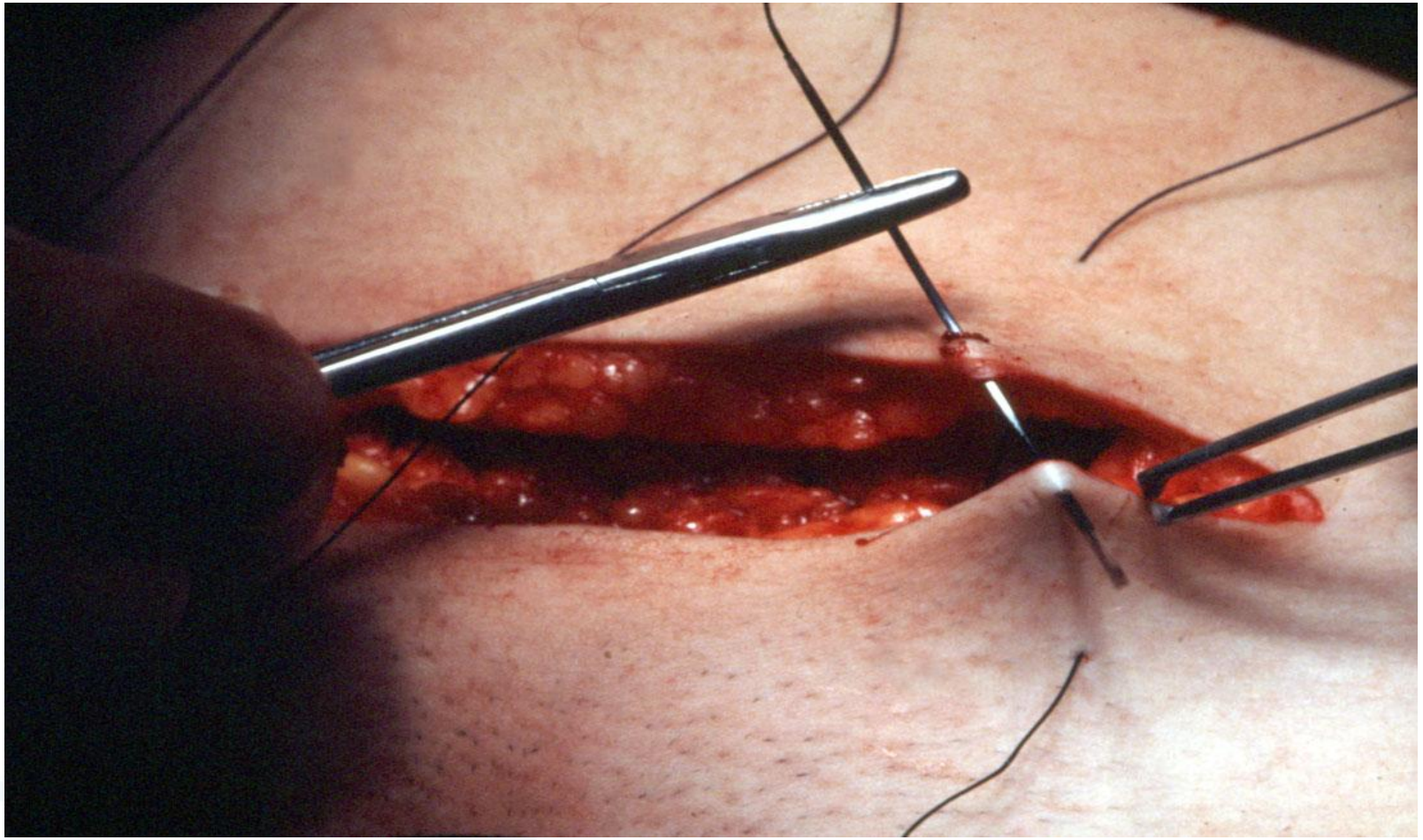


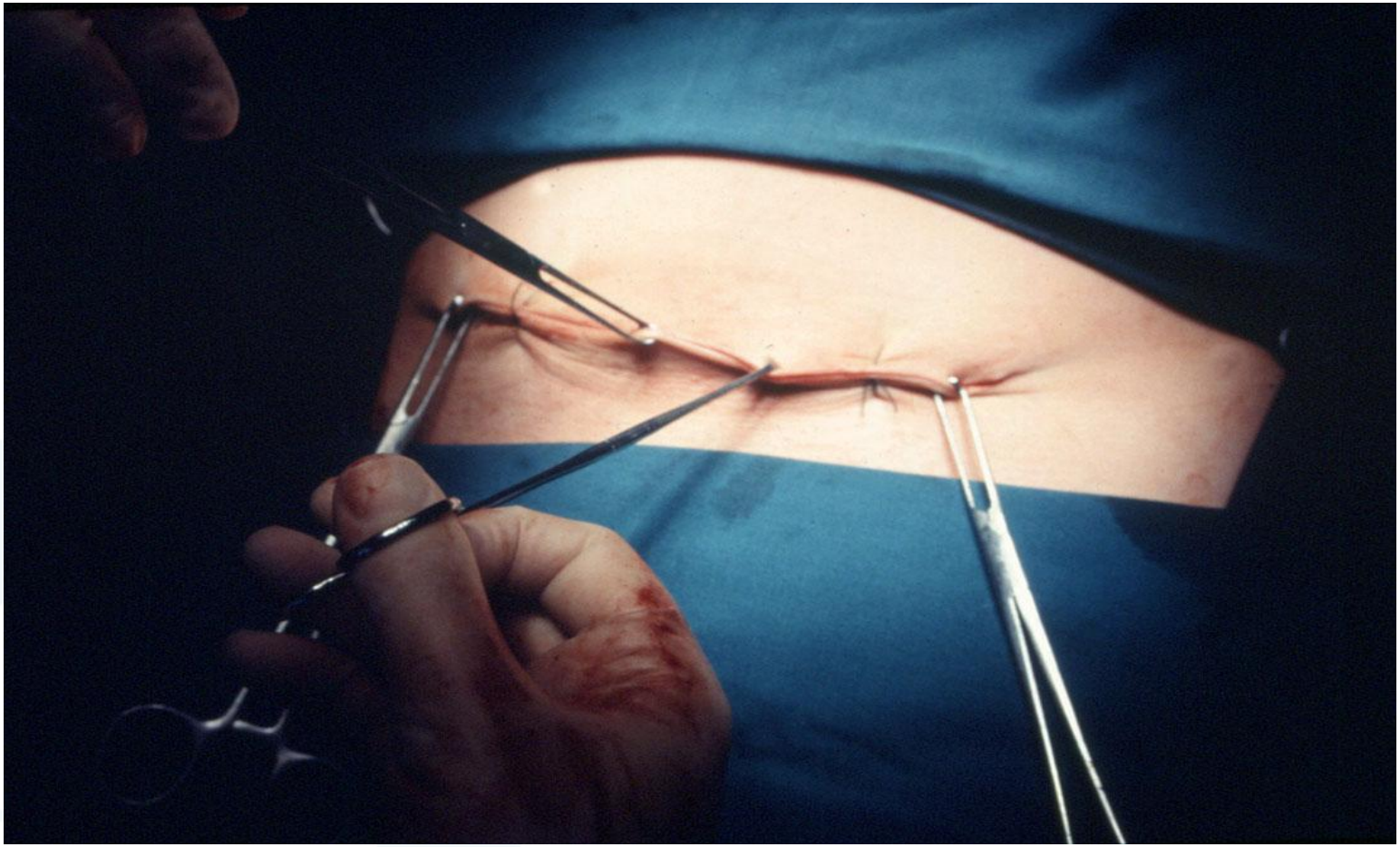


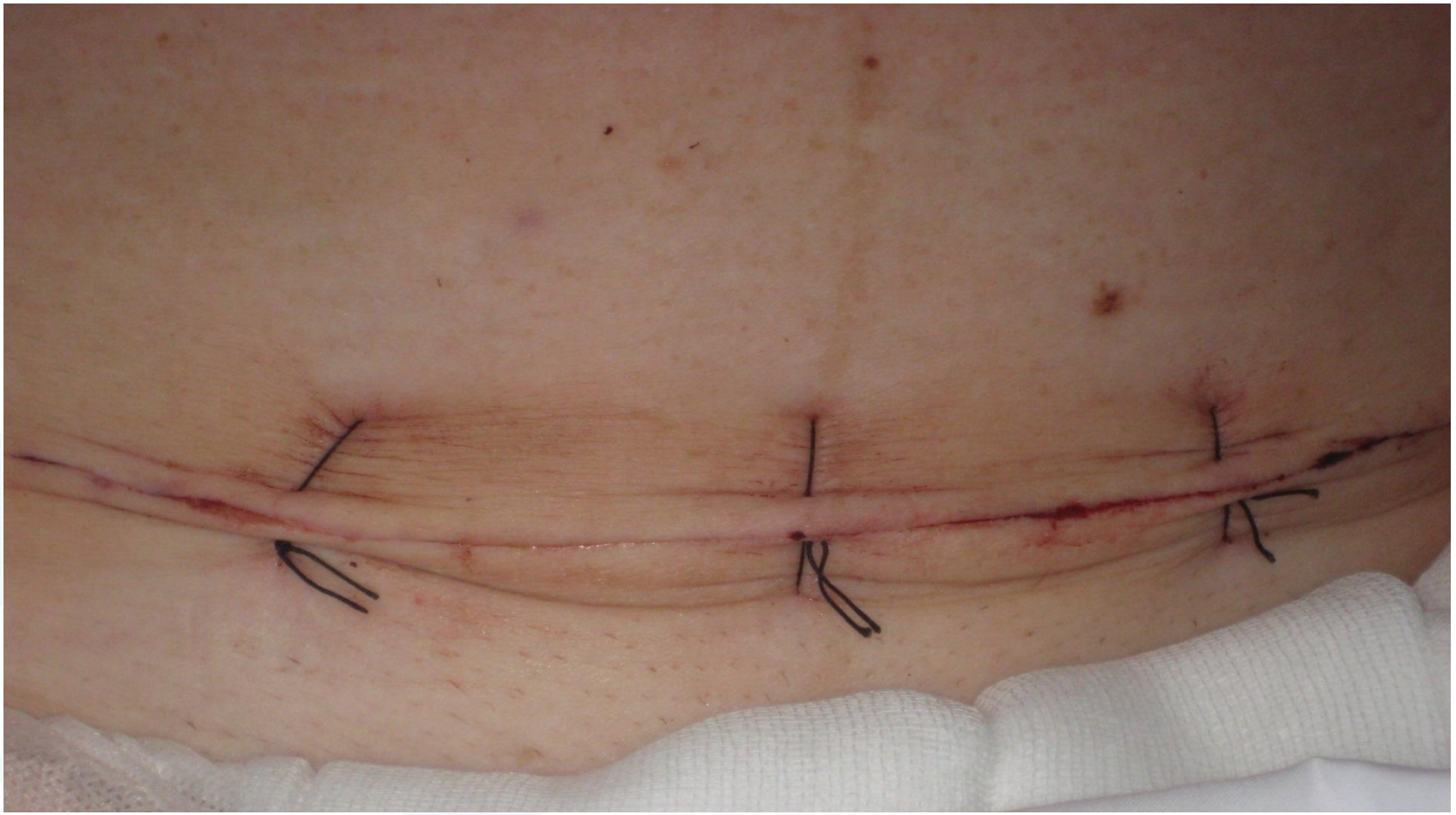


WIDELY SPACED SKIN SUTURES CAUSES...

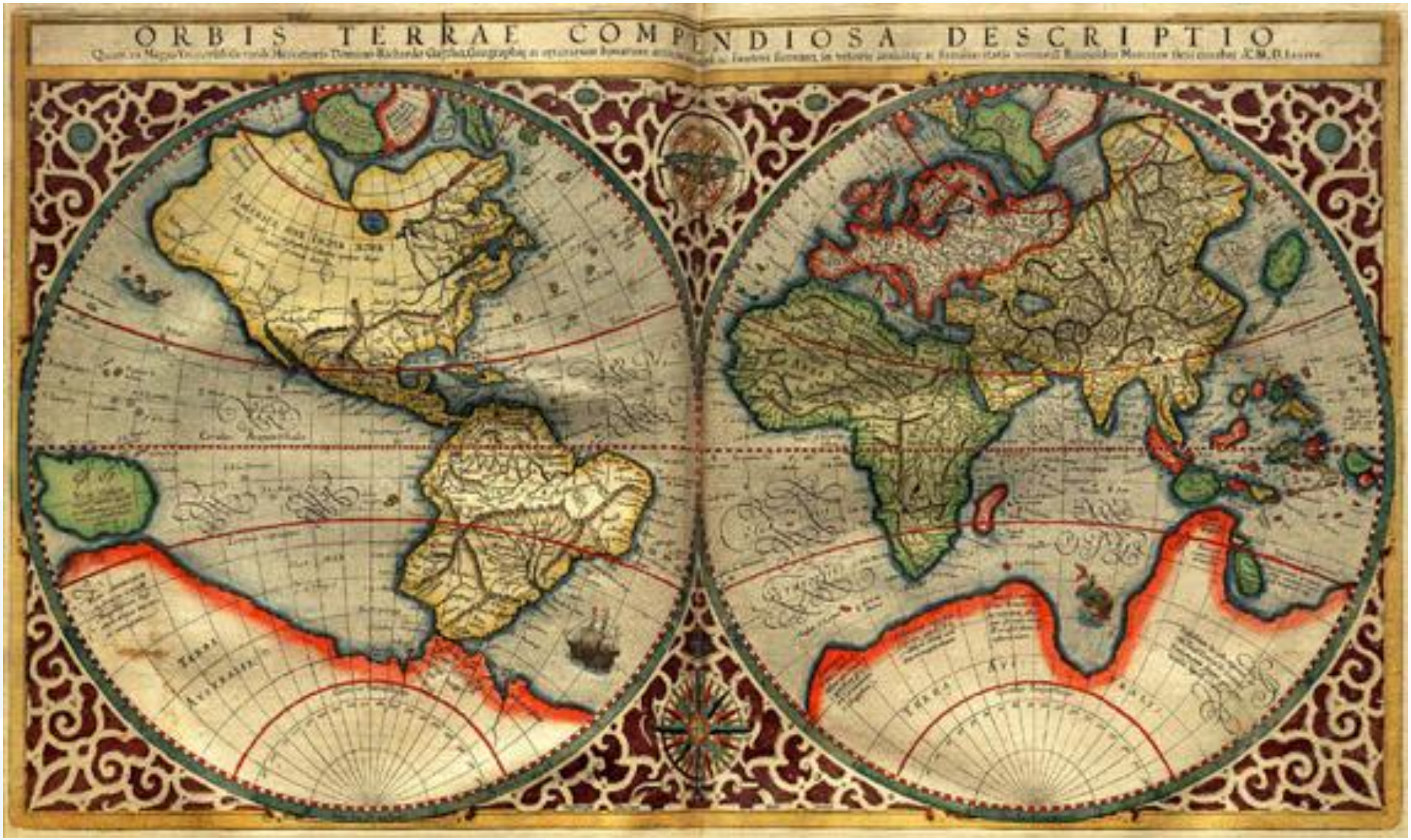
- less seromas
- less hematomas
- therefore less post-operative pain and fever







- The Misgav Ladach Caesarean Section was introduced in 1994 during the Montréal FIGO World Congress.
- Then, printed material and videos of this method were distributed by the University of Uppsala (Unit for International Child Health – ICH) in more than 100 countries

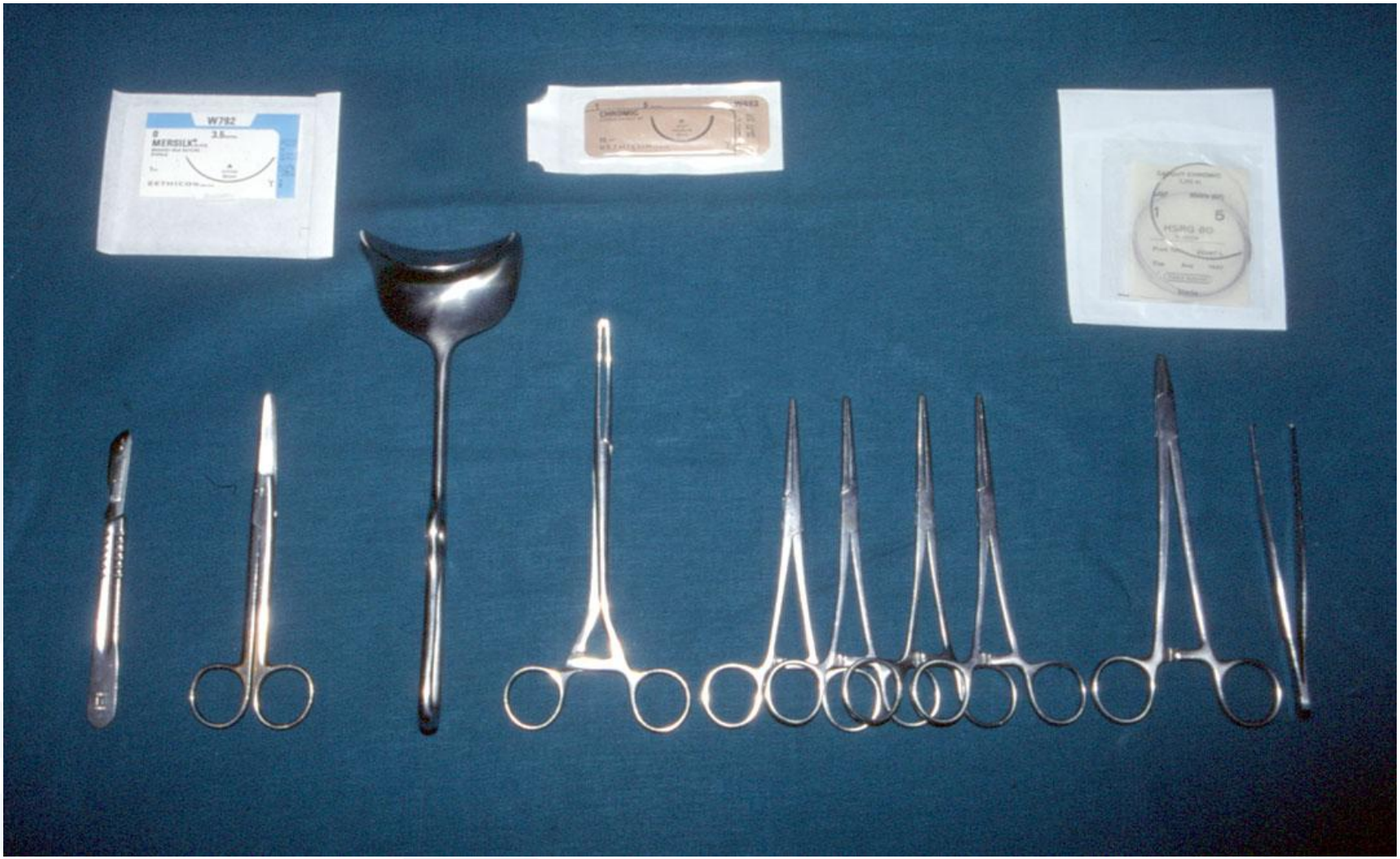

ORBIS TERRAE COMPENDIOSA DESCRIPTIO

- Lectures and surgical courses were held by medical staff members of the Misgav Ladach Hospital and the NESA in 39 countries
- There was very good acceptance, due to…

IMMEDIATE POSTOPERATIVE ORAL HYDRATION AFTER CAESAREAN SECTION

„Immediate postoperative oral rehydration had no harmful effect upon peristalsis post-caesarean section.“

Guedj P, Eldor J, Stark M Asia Oceania J Obstet Gynaecol. 1991 Jun; 17(2): 125-9.


W792
MERSILK
ETHICON

STUDY ON MODIFICATION OF THE MISGAV LADACH METHOD FOR CESAREAN SECTION

	Misgav Ladach	Traditional	Significance
No. of cases	57	56	
Average delivery time (min)	3.6	5.7	P < 0.05
Median operating time (min)	27.5	28.3	P < 0.05
Average blood loss (ml)	128 ± 35	212 ± 147	P < 0.05

Li, M, Zou L, Zhu J. J Tongji Med Univ 2001; 21 (1): 75-77

POST-OPERATIVE COURSE, COMPLICATIONS AND ANTIBIOTICS GIVEN, BY CESAREAN SECTION METHOD

	Stark n	Traditional n	Significance x^2	p
Post-operative course				
Normal / complicated	133/36	132/38	0.055	0.815
Complications				
Wound infection and / or Febrile illness	27	29	0.072	0.788
Wound infection only	5	13	3.148	0.076
Febrile illness only	1	6	-	0.121*
Wound infection and Febrile illness	21	10	4.318	0.311
Antibiotics				
Given intra-operatively	10	24	6.418	0.011
Given post-operatively	5	8	0.702	0.402
Antibiotics given intra and/or post-operatively✝	14	29	5.901	0.015

* Fisher`s exact test (2-sided)

✝ One patient in the ML group and three in the LMI group were treated both intra and post-operatively with antibiotics.

Björklund K, et al. British Journal Obst Gyn 2000; 107 (2): 209-216

POST-OPERATIVE MOBILIZATION AND DISCHARGE OF PATIENTS WITH OR WITHOUT POSTOPERATIVE COMPLICATIONS, BY CESAREAN SECTION METHOD

Post-operative course	Stark Mean (SD)	Traditional Mean (SD)	Mean difference	95% CI
Uncomplicated				
Mobilization (h)	26.1 (6.6)	42.8 (10.5)	-16.7	-18.4; -14.6
Discharge (days)	5.7 (0.9)	6.6 (0.9)	-0.9	-1.1; -0.7
Complicated				
Mobilization (h)	33.5 (14.1)	47.0 (14.2)	-13.5	-20.0; -6.9
Discharge (days)	8.3 (2.0)	8.7 (1.9)	-0.4	-1.3; -0.54

Björklund K, et al. British Journal Obst Gyn 2000; 107 (2): 209-216

	Stark C/S (n = 100)	Traditional C/S (n = 100)	p
Duration of operation (min)	27.2 ± 5.7	50.7 ± 7.9	0.001
Estimated blood-loss (ml)	510.5 ± 338.1	479.5 ± 310.9	N.S.
Average hospital stay (days)	5.2 ± 0.6	7.3 ± 1.0	0.001
Febrile morbidity (%)	9	13	N.S.
Dosage of pain killers	0.52	1.17	
Dehiscence of wound (%)	2	1	N.S.
Infection at operation Site (%)	6	8	N.S.

Federici D, et al. Int J Gynaecol Obstet 1997; 57 (3): 273-279

COMPARISON OF TWO CESAREAN TECHNIQUES: CLASSIC VS. MISGAV LADACH

	Misgav Ladach	Traditional	Significance
No. of cases	200	200	
Average delivery time (min)	5.26	6.20	P < 0.05
Median operating time (min)	36.36	54.38	P < 0.05
Direct operation cost (caculated in €)	75	92	P < 0.05

Moreira P, et al. J Gynecol Obstet Reprod (Paris) 2002; 31 (6): 572 – 576

PROSPECTIVE, RANDOMIZED, COMPARATIVE STUDY OF MISGAV LADACH VS. TRADITIONAL CESAREAN SECTION

	Misgav Ladach	Traditional	Significance
No.	80	80	
Median operating time (min)	20.4 (SD 6.1)	30.4 (SD 6.1)	P < 0.001
No. of Pethidine Amp.	1.3 (SD 0.6)	1.9 (SD 0.7)	P < 0.001
No. of Tablets of Ibuprofen	15.1 (SD 2.0)	16.4 (SD 1.8)	P < 0.001
Visual analogue Scale Score	3.0 (SD 1.5)	4.9 (SD 2.0)	P < 0.01

Ansaloni L, et al. World J Surgery 2001; 25 (9): 1164-1172

MODIFIED MISGAV LADACH METHOD FOR CESAREAN SECTION: CLINICAL EXPERIENCE

	Misgav Ladach	Traditional	Significance
No.	217	153	
Febrile morbidity (%)	2.30	4.57	P = 0.001
Wound infection (%)	0.92	1.96	P = 0.01
Operation time (min.)	26.24	39.41	P < 0.001
Anemia (%)	3.68	7.84	P = 0.001

Kulas T, Habek D, Karsa M, Bobic-Vukovic M, Gynecol Obstet Invest 2008; 14; 65 (4): 222-226

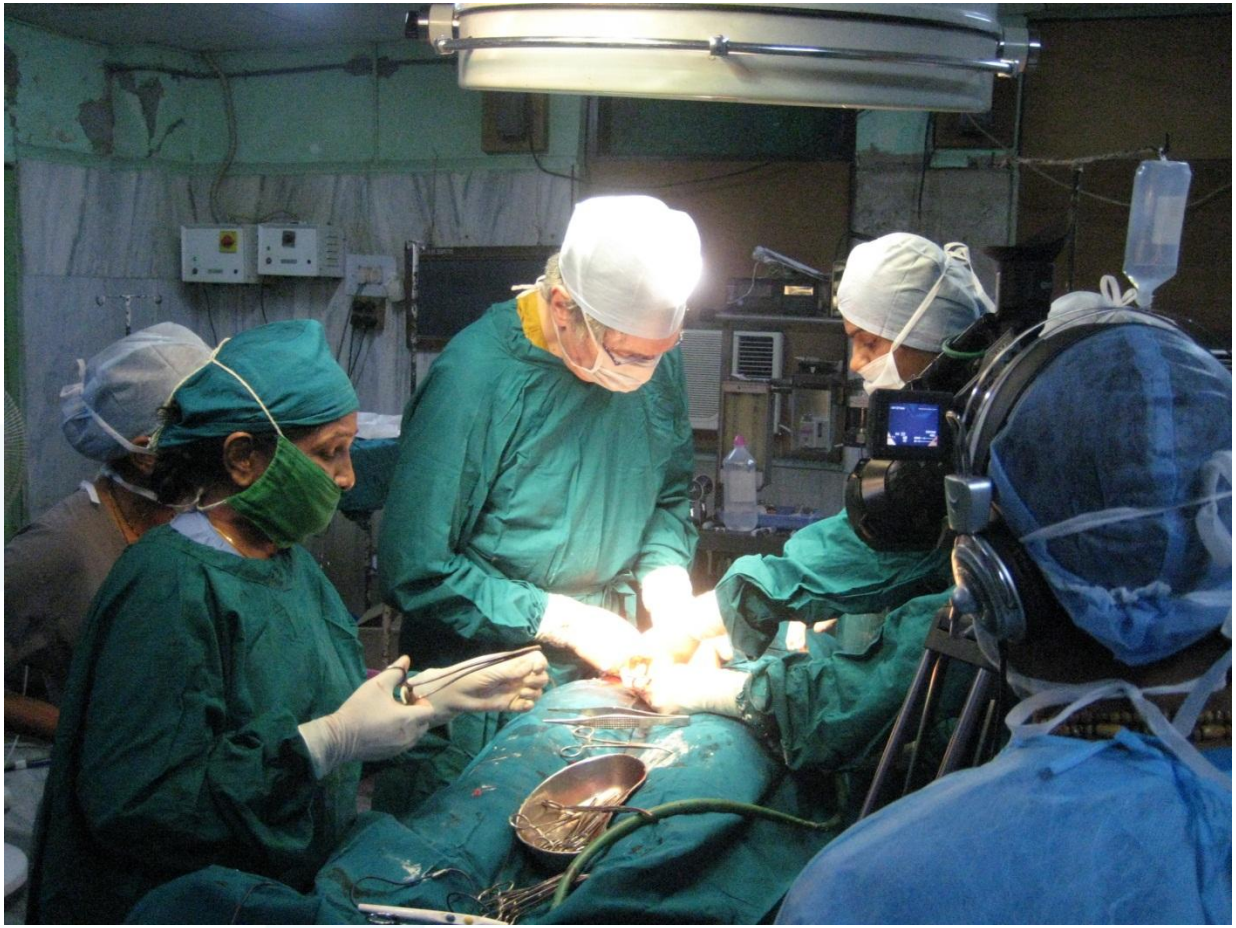
MODIFIED MISGAV-LADACH AT A TERTIARY HOSPITAL

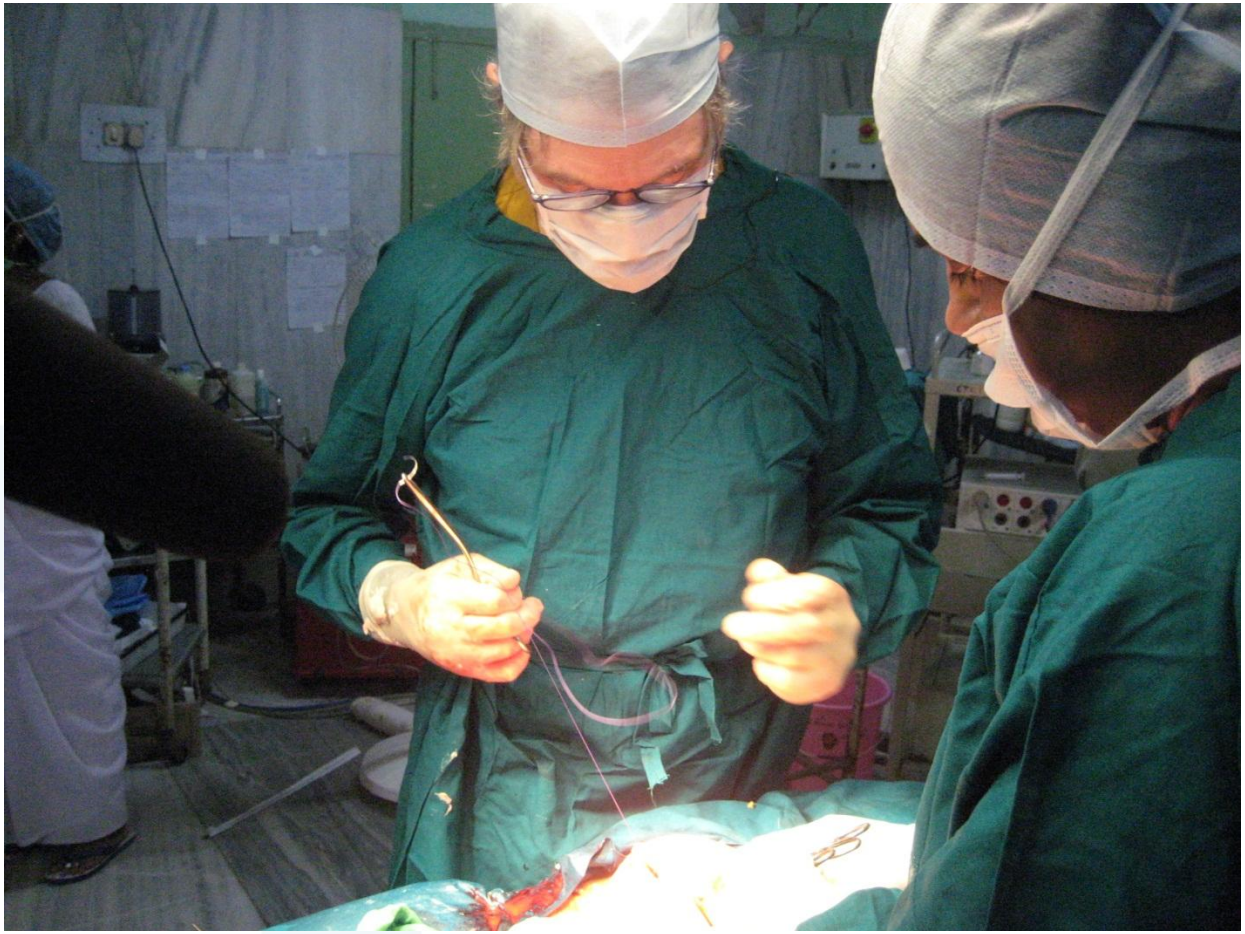
The modified Misgav Ladach surgical technique was associated with better obstetric results than those of the traditional surgical technique.

Martínez Ceccopieri DA et al. Ginecol Obstet Mex. 2012;80(8):501-8.


国际妇科微创技术新进展研讨班

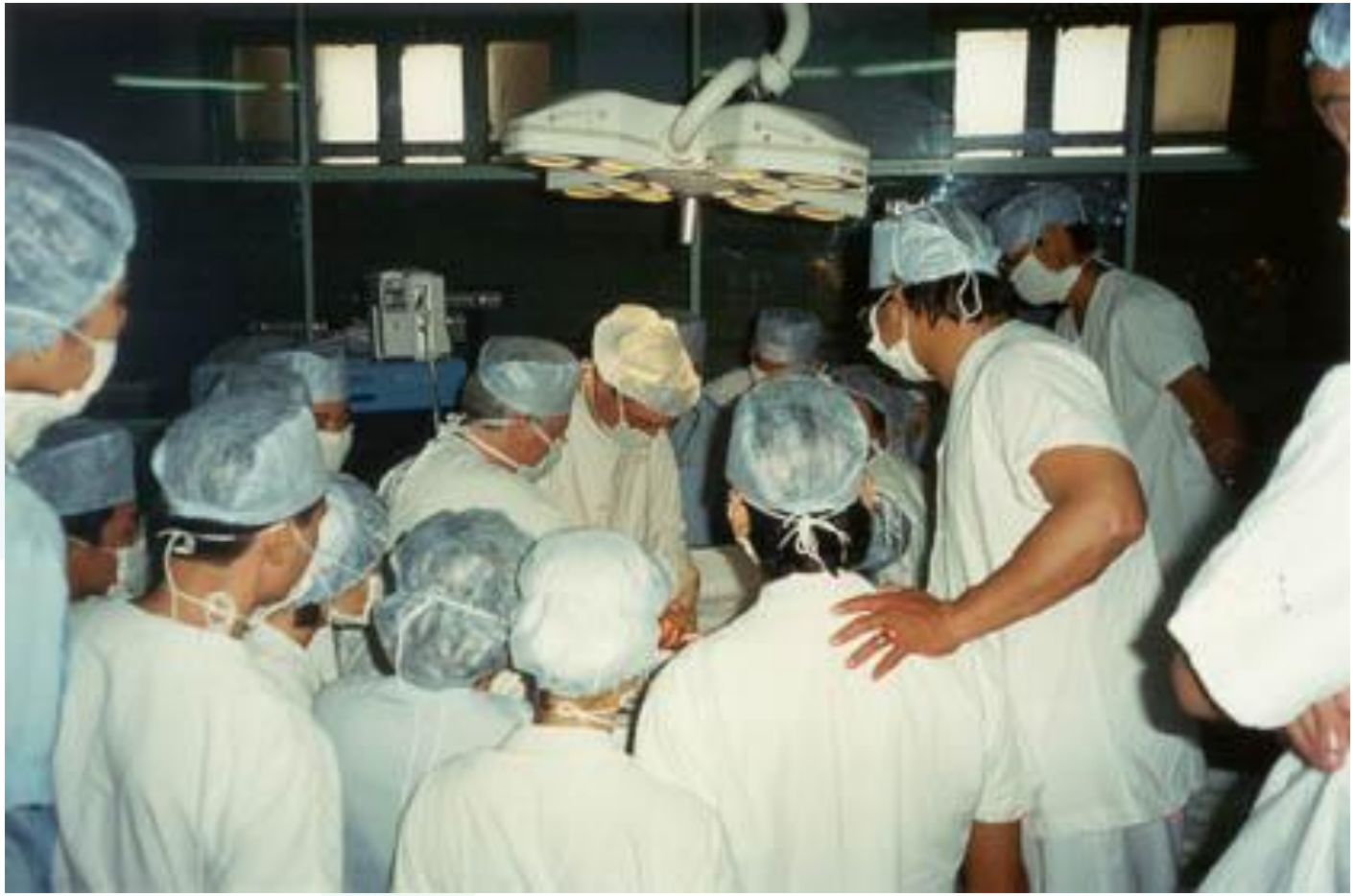

提高思想认识 解决突出问题 创新体制机制 促进科学发展






LATEX
EXAMINATION GLOVES


baby



Contemporary OB/GYN
June 1998

Clinical Dialogue

The Misgav Ladach method of cesarean section

The Misgav Ladach method is a minimalist and critical approach to the traditional cesarean section technique. Dr. Stark developed it by comparing different approaches to the surgical steps in C/S, such as the Joel-Cohen method with the Pfannenstiel incision, closure of the uterus with one layer versus two layers, and closure of the peritoneum versus leaving it open. In this interview, he describes some of these modifications.
—Ronald A. Chez, MD

Chez: How does the Joel-Cohen technique differ from the Pfannenstiel incision?

Stark: The Pfannenstiel incision is based on an anatomical approach, where each layer is opened separately, regardless of its structural entity. It is placed low on the abdomen, where the fascia is attached to the muscle and the longitudinal structures, such as blood vessels, have very little lateral sway.

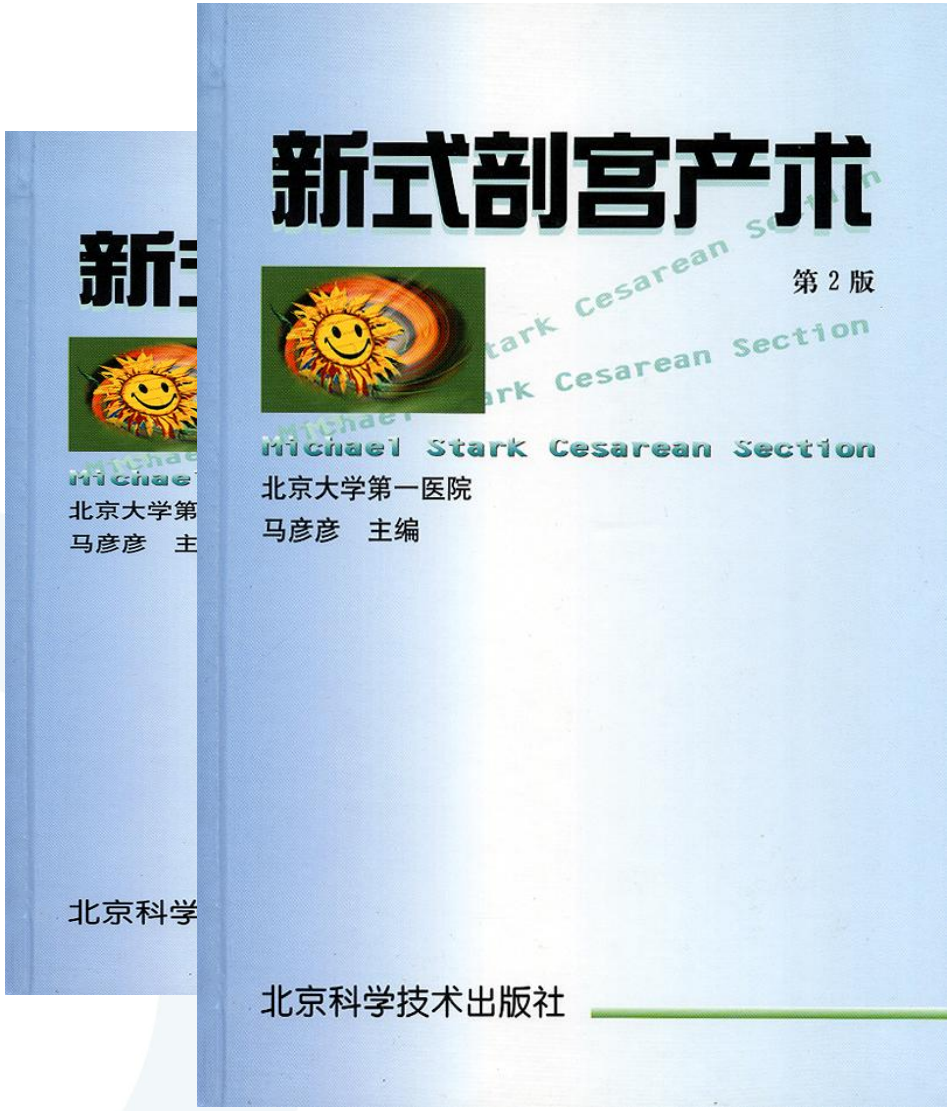
The Joel-Cohen incision is more compatible with anatomical macrostructures and is therefore more functionally sound. Also, it is

cutting only through the cutis, where there are only small vessels (Figure 1). It is placed about an inch below an imaginary line connecting the spinae iliacae anterior superior. The size necessary depends on the thickness

Ronald A. Chez, MD

Michael Stark, MD

of the abdominal wall and the size of the baby.


新式剖宫产术
第 2 版
Michael Stark Cesarean Section
北京大学第一医院
马彦彦 主编
北京科学技术出版社

Thank you for your attention.