

1 **Rupture of a caesarean scar during a trial at vaginal birth: A** 2 **dramatic consequence as old as the modern caesarean section.**

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4 John Hunter (1728-1793), the father of modern surgery, is credited among other
5 pioneering surgical procedures to have performed the first caesarean section
6 (CS) delivery using an evidence-based anatomical approach (Moore W, *The*
7 *Knife Man*, Bantam press, 2005). Even if his procedures were technically
8 successful - and Hunter managed to deliver a few live and surviving babies - the
9 mother inevitably died, mainly due to the lack of suitable suturing material, and
10 wound infection. Thus until the 19th century, CS remained a surgical procedure of
11 last resort performed almost exclusively to save the baby's life. It is only when
12 surgeons started to suture the uterus after delivery that the maternal death rate
13 started to fall below 100%. Further technical advances in surgical techniques
14 during the early 20th century reduced the complication rates of CS substantially.
15 As a result, mothers not only survived the surgical procedure but were also able
16 to have one or more subsequent pregnancies.

17 With the rising numbers of CSs came new complications in subsequent
18 pregnancies and in particular rupture of the previous uterine scar. In 1921, in a
19 special issue on CS of the *Journal*, Eardley Holland (1880-1967), Consultant at
20 the London Hospital, reported on five cases of scar rupture leading to maternal
21 death during pregnancy or labour (*J Obstet Gynecol Br Emp* 28:488-522).
22 Holland recalled having performed the primary caesarean section of one these
23 patient five years earlier and he stated: "The occurrence of these treacherous
24 accidents made a very great impression on the minds of myself and my
25 colleagues". His inquiry indicated that there was little information about the
26 causes and frequency of scar rupture after CS and that "certain surgeons were
27 so afraid of ruptured scar that they sterilize their patients at the first operation".

28 The classical CS is associated with the greatest damage to the uterine
29 wall and not surprisingly with the highest risk of ruptured scar in subsequent
30 pregnancies, before and during labour. Low segment CSs are rarely associated
31 with spontaneous scar rupture during pregnancy, but are observed in 1 in 250
32 spontaneous labours, and the risk is higher when labour is induced with
33 prostaglandins (Landon et al., *NEJM*. 2004, 351:2581-9). However, the reason
34 why, some women rupture their scar and others do not, remains unclear.
35 Variations in surgical techniques or different suture material used do not seem to
36 explain scar rupture in subsequent pregnancies (Roberge et al., *Int J Gynaecol*
37 *Obstet* 2011;115:5-10).

38 The use of continuous fetal heart monitoring during labour and access to
39 fluid infusion and blood transfusion has reduced fetal and maternal morbidity and
40 mortality in deliveries complicated by ruptured uterine scar. The data analysis of
41 a representative sample of the French obstetric population indicates that the
42 incidence of elective repeat CS is well above that expected from the national
43 guidelines for women eligible for a trial of scar (Bartolo et al., *BJOG*, in this
44 issue). They suggest that non-medical reasons are involved in the decision.
45 Perhaps collective memory of the dramatic consequences of a ruptured scar still
46 influences doctor and patient choice.

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48 Word count: 503

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51 MC on MS2015-CM-16706 by Bartolo et al

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54 Figure 1 from Holland

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57 **Disclosure of interests**

58 I declare no conflicts of interest.

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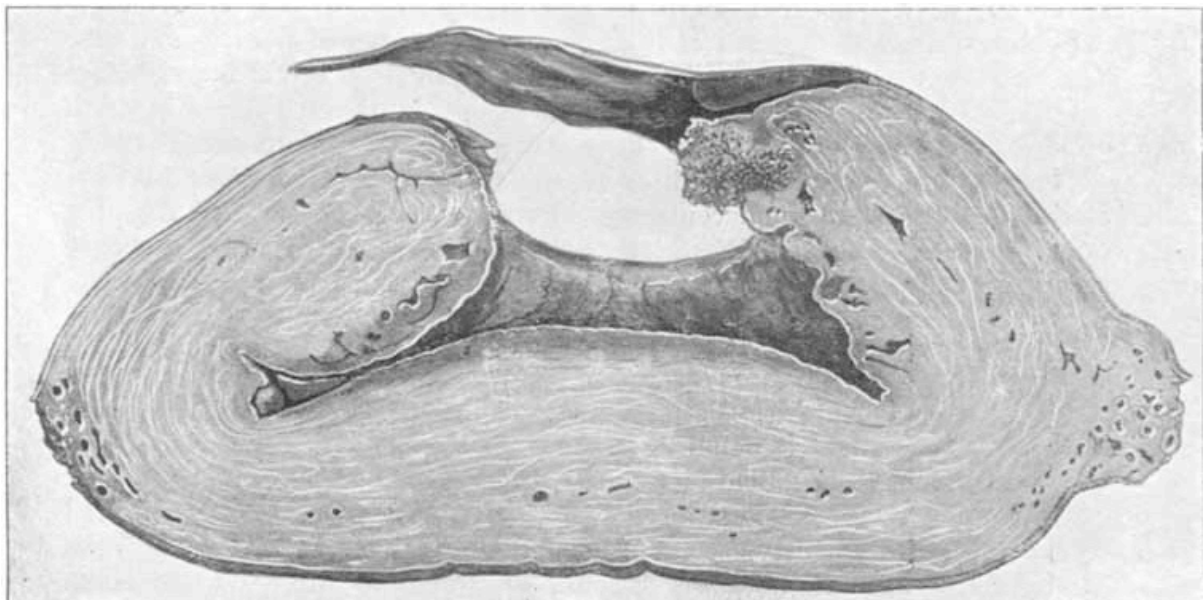
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