

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

3  
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 19<sup>th</sup> 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 20<sup>th</sup> 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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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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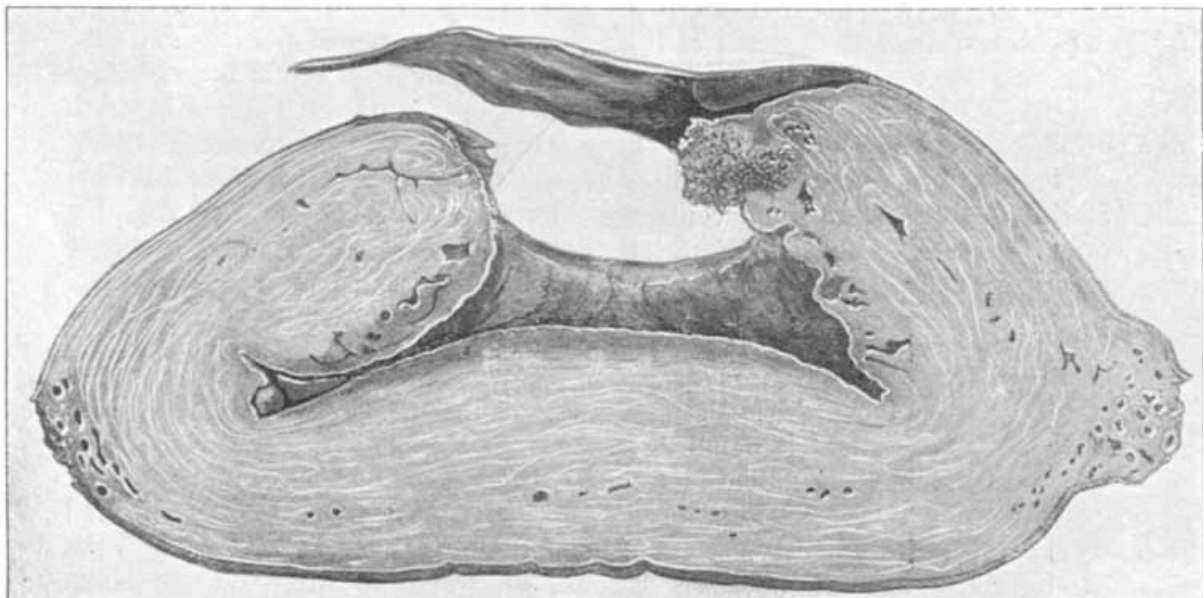
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