

# 1 **ECTOPIC PREGNANCY: 130 YEARS OF MEDICAL DIAGNOSTIC** 2 **CHALLENGES**

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4 In the first issue of the Journal, Sir William Japp Sinclair (1846-1912), Professor  
5 of Obstetrics and Gynaecology at Owens College, Manchester and pioneer of  
6 modern gynaecological surgery describes a case of unruptured tubal pregnancy  
7 at 6 months (J Obstet Gynaecol Brit Emp 1902;1:61-6). The patient was a  
8 primigravid who presented with no menstrual period for 13 months, pain in the  
9 left iliac region, abdominal swelling and breast milk production. At laparotomy, a  
10 “cystic mass” containing a macerated fetus was removed from the left tube  
11 (Figure). The patient made a full recovery. Successful treatment of tubal  
12 pregnancy with salpingectomy was first reported in 1884 by Robert Lawson Tait  
13 (1845-1899) in Birmingham. With only one death out of 23 operated cases, he  
14 stated that his surgical procedure “is quite sufficient proof that this terrible  
15 accident is within the curative power of the surgeon, provided there is no delay in  
16 diagnosing the condition” (BMJ 1885;1303:1158). This was a marked  
17 improvement for a condition that had been almost always fatal. Major progresses  
18 have been made in diagnosis and management since, however, undiagnosed  
19 ectopic pregnancy remains a direct cause of maternal death (MBRRACE-UK,  
20 Saving lives, improving mothers’ care, 2017).

21 For more than seven decades since the Robert L Tait case series, the  
22 diagnosis of tubal pregnancy remained exclusively clinical and based on the  
23 maternal symptoms associated with tubal rupture. The development of bioassays  
24 to measure human chorionic gonadotropin levels in maternal urine and serum  
25 (Dorfman RI and Rubin BL, Endocrinol 1947;41:456-63), confirming the presence

26 of a pregnancy and of imaging techniques such as hysterosalpingography or  
27 placenta radionuclide scanning enabled surgeons to diagnose and operate on an  
28 increasing number of cases before rupture. When ultrasound imaging was first  
29 introduced in the diagnosis of tubal pregnancy, it was just as an aid to clinical  
30 diagnosis (Kobayashi et al., AJOG 1969; 103:1131-40). Over the following three  
31 decades, sonographic results were correlated and then progressively integrated  
32 with clinical symptoms and findings of other diagnostic tools such as culdoscopy  
33 in 1970s and then laparoscopy in the 1980s. High resolution transvaginal  
34 ultrasound imaging in expert hands now detects 74% of ectopic pregnancies at  
35 initial presentation. A further 24% are detected on follow-up ultrasound  
36 examination giving an overall detection rate of 98% (Kirk E et al., Hum Reprod  
37 2007;22:2824-8).

38 Tubal pregnancies have been and remain the most common form of  
39 ectopic pregnancies. Caesarean scar pregnancy was recently recognised and its  
40 incidence is likely to increase due to rapid increase in caesarean section rates.  
41 Unlike, tubal pregnancies, scar pregnancies are surrounded by thick myometrial  
42 layers and thus they rarely rupture during the first trimester. They are also easier  
43 to locate on ultrasound imaging which facilitates early diagnosis and treatment.  
44 This can explain the findings of the national cohort study using the UK  
45 Early Pregnancy Surveillance Service (UKEPSS) showing the high success rate  
46 of surgical management, low complication rate and short post-treatment follow up  
47 of this type extrauterine pregnancies (Harb et al., BJOG; 2018: in press).

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49 Word count: 495.

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51 MC on 2017-OG-20511R1 by Harb et al

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53 **Disclosure of interests**

54 We declare no conflicts of interest.

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56 Eric Jauniaux

57 EGA Institute for Women's Health, Faculty of Population Health Sciences,

58 University College London (UCL), London, UK

59

60 Davor Jurkovic

61 Early Pregnancy Assessment Unit (EPAU), Department of Obstetrics and

62 Gynaecology, University College London Hospital (UCLH), London

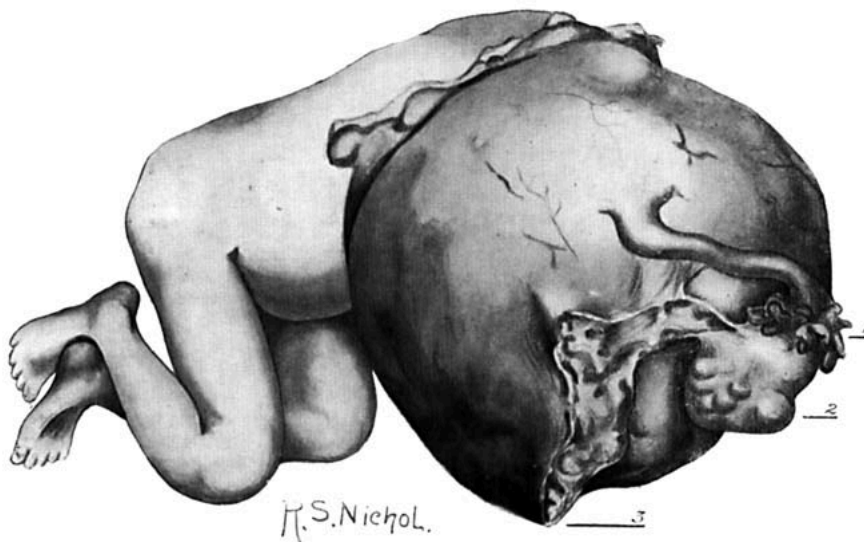
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65 **Figure:** Tumour and fetal as removed by operation. 1= Ostium abdominale; 2=  
66 Normal ovary; 3= Fallopian tube near left corner of uterus (J Obstet Gynaecol Brit  
67 Emp 1902;1:61-6).

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