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## SYMPOSIUM: THE HISTORY OF THE FIRST IVF BIRTHS

# The Oldham Notebooks: an analysis of the development of IVF 1969–1978. II. The treatment cycles and their outcomes


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Kay Elder joined Bourn Hall in 1984 as Clinical Assistant to Patrick Steptoe, directing the Out-Patient Department from 1985 – 1987. Her scientific background as a research scientist at Imperial Cancer Research Fund prior to a medical degree at Cambridge University naturally led her to Bob Edwards and the IVF laboratory, where she worked as a senior embryologist from 1987. A programme of Continuing Education for IVF doctors, scientists and nurses at Bourn Hall was established in 1989, which she directed for 16 years. During this period she also helped to set up and run two Master's degree programmes in Clinical Embryology, and she continues to mentor and tutor postgraduate students of Clinical Embryology at the University of Leeds. In her current role as Senior Research Scientist at Bourn Hall she co-ordinates research collaborations with the MRC Laboratory of Molecular Biology in Cambridge and the MRC National Institute for Medical Research in Mill Hill.

**Abstract** This paper reports on the numbers of treatment cycles involved in the development of IVF (1969–1978) and their outcomes. We show that between 1969 and 1978: (i) a minimum of 282 women were involved in 495 cycles of potential laparoscopic oocyte retrieval (LOR); (ii) of these cycles, 457/495 proceeded to LOR to attempt egg collection; (iii) of which an outcome was recorded in 436/457; (iv) eggs were recovered in 388/436 of these; (v) inseminations were recorded in 331/388; (vi) embryos were recorded in at least 167; (vii) a total of 112 embryo transfers were attempted; and (viii) a maximum of 11 possible biochemical/preclinical pregnancies plus five clinical pregnancies were observed; (ix) from which two healthy live births resulted. 

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**KEYWORDS:** embryo transfers, fertilisation rates, history of IVF, laparoscopic oocyte retrieval, pregnancy outcomes

## Introduction

This paper is based upon data sets prepared from studying the L books and laparoscopy sheets, with cross-reference to notebooks T/D and FF in order to confirm dates or any missing

information (Elder and Johnson, 2015a). Each patient is identifiable in the data by surname and laparoscopy cycle number when available. The same surnames can appear under different treatment cycle numbers, but, via reference to initials, first names and/or age and date of birth, we have

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been able to establish whether these are the same patients undergoing more than one treatment cycle or different patients who share the same surname. Laparoscopies are listed under 3-digit coding numbers; corresponding 6-digit hospital numbers are recorded separately in Notebook L0 for most patients from January 1969 to 23 March 1970 (L134–226) in blue ink, with the 3-digit L code evidently added later in red ink up to L216. In addition, the 6-digit hospital numbers appear for 89 patients on two sheets of paper (RGE1, 1971) with the title 'All patients ever admitted to Dr Kershaw's for oocytes'. By cross-reference to the data files, we deduce that this list represents patients treated during 1971, 1972, 1973 and 1974; we surmise that other named patients from this period, who do not feature on this list, were all treated in Oldham and District General Hospital (ODGH). One named patient from 1971, whose only record is that of a laparoscopy (recorded in Table 4 under a 6-digit number), does not appear elsewhere in any of the notebooks with a 3-digit code, and no further data regarding her cycle were found. Not all L-numbered cycles resulted in a laparoscopy for various reasons. It is also clear from the interview with Grace MacDonald (Suppl. Material: pp.9–10) and the Edwards' papers (RGE2, 1978) that a number of patients had preliminary assessment laparoscopies without being given L numbers prior to being admitted to the IVF programme. These records are presumably included in the patient's ODGH clinical notes (now lost) and are not within the data available to us. Throughout this paper, any dates given for cycles are those

on which laparoscopy was recorded as having occurred (unless otherwise stated).

## Results and discussion

### Numbers of laparoscopies for oocyte retrieval

Records of attempted laparoscopic oocyte retrievals (LOR) extend from 9 January 1969 to the last, dated 1 August 1978, after which Steptoe retired from his National Health Service position and the Oldham unit closed (Edwards and Steptoe, 1980, p.155). Initial activity peaked in 1969/70, dipping between 1971 and 1975, before rising to a second peak in 1978 (see Table 5; a finer grained examination of these variations, and the possible explanations underlying them, is discussed in Paper V of this series; Johnson and Elder, 2015b).

The first laparoscopy is numbered L134 (Patient 1: P1) dated 9 January 1969. The missing numbers L1–133 may represent a series of laparoscopies performed by Steptoe prior to the systematic attempts at LOR, the starting date for which accords with the comment at the end of the Discussion in Edwards et al. (1969, published 13 February 1969; but received 13 December 1968): "Preliminary work using laparoscopy has shown that oocytes can be recovered from ovaries by puncturing ripening follicles *in vivo* ... Improvements in equipment and techniques may give better results...". The 3-digit cycle numbering runs from L134 to L747, with a few

**Table 1** Patients identified by name or with an L number but not scheduled for laparoscopic oocyte retrieval/IVF in that cycle.

| Year | Procedure   | Patients (n) | L number               | P number                    |
|------|---|--------------|------------------------|-----------------------------|
| 1969 | Hysterectomy with oophorectomy (follicles pricked out post-operatively, one oocyte retrieved and stained)   | 1            | 169                    | 27                          |
|      | One unnamed patient recorded as 'human control'   | 1            | 188                    | 43                          |
| 1970 | Laparotomy/adhesiolysis   | 1            | 238                    | 67                          |
|      | 21 names listed as 'vasectomy patients' under a single L number and assigned a single P number <sup>a</sup>   | 1            | 251 <sup>a</sup>       | 74 (M) <sup>a</sup>         |
| 1971 | Hydrotubation   | 1            | 293b                   | 104                         |
|      | Unnamed control natural cycle   | 1            | 301                    | 106                         |
|      | Diagnostic natural cycle  | 2            | 290, 291               | 100 <sup>b</sup> , 101      |
|      | Laparoscopic sterilization (no eggs recorded)   | 1            | 293a                   | 103                         |
| 1972 | None  | –            | –                      | –                           |
| 1973 | Blood tests + seminal anti-sperm antibodies <sup>a</sup>  | 1            | 386 <sup>a</sup>       | 142 (M)                     |
| 1974 | Anti-sperm antibodies test <sup>a</sup>   | 1            | 406 <sup>a</sup>       | 130 <sup>b</sup> (M)        |
|      | Sperm preparation only <sup>a</sup>   | 2            | 404 <sup>a</sup> , 405 | 125 & 153 <sup>b</sup> (M), |
|      | Laparoscopic sterilizations (In 2/3 of these, follicles pricked out post-operatively yielded eggs that were inseminated; 1 × 16-cell embryo resulted) | 3            | 414, 422, 425          | 159, 165, 167               |
| 1975 | 'Sent to Addenbrookes to Mr Robinson' <sup>a</sup>  | 4            | 434–437                | 172–175                     |
| 1976 | Laparoscopic sterilization (2 eggs recovered: nothing further recorded)   | 1            | 497                    | 210                         |
|      | Artificial insemination by husband  | 2            | No L-number            | 227, 228 <sup>b</sup>       |
| 1977 | None  | –            | –                      | –                           |
| 1978 | Laparoscopic sterilizations (four eggs recovered; one fixed; nothing further recorded)  | 2            | 677, 695               | 271, 283                    |
|      | <b>Total</b>  | <b>25</b>    | <b>–</b>               | <b>–</b>                    |

(M) indicates 'patients' were men, but nonetheless had L numbers; for patient nos. 125 and 130, the men were partners of female patients and assigned their female partner's P number. For patient nos. 142 and 153, no female partners are evident and so these P numbers are unique to the men. The L numbers were perhaps assigned for the purpose of identifying their blood and semen samples in the records.

<sup>a</sup> See text.

<sup>b</sup> P numbers 100, 125, 130 and 228 are also included in Table 2, because they subsequently had cycles that were prepared for oocyte retrieval, which was not the case for any of the others in this table: P100 (cycles L340 and 399), P125 (L351 and 428), P130 (L366 and 401), and P228 (L715).

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