SEPTIC ABORTIONS AND THEIR MANAGEMENT

by

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Abortion when complicated with sepsis poses several problems. Being a reflection of social inadequacies it is on occasions associated with interference, and delay in seeking aid is motivated by the desire for secrecy with repercussions in severity. These patients require not only careful diagnosis but intensive supportive therapy with intravenous fluids, electrolytes and blood, plus massive antibiotic therapy. The controversial problem of curettage in infected cases and its timing has occupied much attention, as the traditional opinion either favoured no surgical manipulation or a delayed evacuation to prevent dissemination of infection. Recently, early evacuation to remove the main source of infection has had several advocates.

From 1st January 1968 to 31st December 1968 there were 3,189 abortions admitted in the wards of the Lady Hardinge Medical College. Using Burnett's (1952) criteria of temperature of 99°F or more, with a subinvoluted uterus or an offensive lochial discharge, after excluding extra-genital causes for fever and with reasonable evidence of pregnancy, 107 cases were classified as septic, giving an incidence of 3.7%. Knapp *et al* (1960) found a septic abortion incidence of 5.8%. There were 9 deaths giving a septic death rate of 0.28% among all abortions and of 8.4% among all septic abortions. Jones *et al* (1954) found an overall mortality ratio of 0.63%.

Age: four patients were below 20 years and 7 above 40 years.

Parity: Fourteen (13%) patients had no children, 11 were primigravidae and 3 were gravida 2 and 3. Only one was unmarried and 34 (31.7%) had 5 or more children with 14 being para 8 and over. Gestational age varied upto 26 weeks, 78 (72.9%) being under 16 weeks. In 12 cases gestation was denied.

The cases were divided into the 3 classical types. Type I represented by 75 cases (69.1%) had infection confined to the uterus. Type II represented by 19 (17.7%) included cases with parametritis, pelvic peritonitis, pelvic abscess or spread to the adnexae. Type III represented widespread sepsis like generalised peritonitis and septicaemia, and included 13 (11.2%) cases.

A history of interference was given by 43 patients (40.2%), 22 (51.1%) by a dai, 13 (30%) by a doctor or nurse and in one case the abortion was self induced, while in 7 cases the infection followed hospital evacuation. Three primigravidae gave a history of interference and one more had suggestive cervical tears. A history

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of interference showed on categorising, a rising incidence; 25 (33%) by type I, 10 (52.5%) by type II and 8 (61.5%) by type III. Though the real figures probably are much higher it shows that patients only disclose this information under duress. Goodno *et al* (1963) noted that 45.7% of type III cases admitted interference as against 13.3% of type I. A history of preceeding fever, varying from 2 to 15 days was given by 52 (48.6%) as compared to 76.9% in Neuwirth and Friedman's series (1963).

Symptoms: On admission, 12 (11.2%) were in shock and this compares well with 14.5% in Neuwirth and Friedman's series (1963). Six of these belonged to type III and 2 to type II. Three cases, all of septicaemia were admitted semi or unconscious. A temperature ranging between 99° and 100.4°F was found in 19 (17.8%), while 28 (26.1%) had 103°F or more as compared to 43.9% in the series of Neuwirth and Friedman (1963). A pulse of over 110, which has greater prognostic value, was found in 8 (42.1%) in type II and 11 (84.6%) in type III cases. Vomiting was found more in types II and III when peritonitis was the complicating factor. Seven had absent bowel sounds.

Investigations: Hb levels of 8 gm% and below were found in 27 (25.2%) and only one was severely anaemic. Vaginal cultures were done in 54 and were sterile in 18. Staphylococcus pyogenes was found in 20 (37%), Klebsiella in 6 and E. coli in one. Blood cultures were done in 21 cases and were found to be sterile in 15. In 6 cases, Klebsiella, Ps pyocyaneus, B. coli and Staphylococcus pyogenes were found.

An interesting feature which emerged when studying the behaviour of those who harboured Staphylococcus pyogenes was the prolonged hospitalisation involved. In type I the average stay of these patients rose to 9.2 days as against 6.2 days of all type I. In the 3 who had Staph. pyogenes in their blood, two died after a hospital stay of 8 and 15 days, while a third recovered after a prolonged stay of 36 days with spiking temperature.

Diagnosis and course: One died of tetanus and in 7 (5 of whom died) septicaemia was diagnosed, one clinically, one on postmortem and 5 were proved on blood cultures. One of these had Staph. pyogenes in her blood, was resistant to all drugs except chloromycetin and was complicated with metastatic lung abscesses, while one had peritonitis and endotoxic shock with E. coli in her blood. Generalised peritonitis was diagnosed in 6 with intestinal perforation in 2. Three of these died and 3 recovered, one localising as a pelvic abscess which needed colpotomy and one formed tubo-ovarian masses. Ten had pelvic cellulitis while 7 had pelvic peritonitis with one dying of pulmonary embolism, and 2 needing colpotomies for drainage. The management started with antibiotics after the initial investigations and swabs, and evacuation either digitally or with a sponge holder if the os was open. Dilatation and curettage was postponed till after the patient was afebrile unless it was imperative due to haemorrhage or when an abscess needed drainage.

Except 7, all 104 had crystalline

penicillin varying from 2 to 5 lacs 6 hourly and streptomycin 1 gm daily. The broad spectrum antibiotics either orally, or parentarily in order of frequency were chloromycetin, achromycin erythromycin and reverin. Only 10 (13.3%) of type I, needed either one or more broad spectrum antibiotics in addition, compared to 14 (73.6%) type II and 100% type III.

Supportive therapy, in the way of fluids, blood and electrolytes, was used along with efcorlin, mephantin or noradrenaline when required and with adjuvant measures like Ryle's tube for paralytic ileus. Oxytocics were not used routinely:- 35 (46.80%) in Type I, 5 (26.3%) in Type II and none in Type III required some oxytocic. Surgical treatment in some form was given in 66 (52.3%) cases, 42 (39.2%) being evacuation or curettage. Among 75 Type I, 16 were treated conservatively (2 with pitocin); 53 (70.6%) were treated actively; 35 had evacuations, 3 digitally and the rest with a sponge holder while 18 had curettage. Two were threatened abortions, 4 went against advice. There were no deaths. In Type II, 9 were treated conservatively and 10 had some surgical management: 7 having evacuations, and 3 colpotomies. There was 1 death (5.2%).

In Type III, 2 had laparotomies for intestinal perforation and one had a colpotomy. The rest were treated conservatively. There were 8 deaths (61.5%). While evaluating the conservative and active lines of management two factors were considered. (1) Stay in hospital; (2) spread of sepsis. Stay in hospital. The average stay in all, was 9.7 days. Goodno *et al* (1963) found an average stay of 7 days varying from 11 days in Type III, to 6.1 days in Type I. In this series the average stay for Type III was 18.1 days, and 17.2 days for Type II. For Type I it was 6.2 days, being 6.3 days for those who were managed conservatively, compared with 6.2 days, with a post evacuation stay of 4.6 days for those who had evacuation and 7.4 days with a post-curettage stay of 3 days for those who were curetted.

The second factor was sepsis and its spread. Goodno *et al* (1963) found 1.5 days elapsed in Type I before the patient was afebrile. In this study, it was found that only 3 (8.5%) were afebrile within 24 hours as against 63.9% in Neuwirth and Friedman's series while in 29 (38.6%) it took 48 hours for temperature to reach normal. Only 42 (56%) were afebrile after 72 hours as against 4% in Neuwirth and Friedman's series, thus supporting the group who advise antibiotics for 24-48 hours prior to active treatment.

Among 35 who had evacuations, 19 (54.2%) on the same day and 29 (82.8%) within 24 hours, 34 (97.1%) were febrile at the time and 33 (94.3%) continued being pyrexial for 1 to 8 days after. In one alone was the pyrexia controlled immediately after evacuation. In 7 there were further developments; two needed re-evacuation, one developed post evacuation pyrexia after being apyrexial before, one developed a pelvic abscess and needed a colpotomy and 3 (8.7%) needed re-admission for a flare up of sepsis one requiring re-evacuation while two responded to conservative manage-

ment. Hence, in 5 (14.3%) there was exacerbation with spread in one (2.8%) while 94.3% continued being pyrexial.

Among 18 who had dilatation and curettage, only 1 (5.5%) within 24 hours, 14 (77.7%) were afebrile for 1-8 days before curettage and 13 (93%) of these remained apyrexial, while 1 (7.1%) developed post-curettage pyrexia. Of the 3 who were curetted (one within 24 hours) during the pyrexial phase, 2 (66.6%) continued with pyrexia. Two cases (11.1%) needed re-admission, one for evacuation and one (5.5%) who progressed to Type II needed drainage of a pelvic abscess. Hence in 5.5% there was spread.

Among those treated conservatively one (6.2%) returned for subsequent curettage for a placental polyp. Hence in Type I, as against one (6.2%) treated conservatively, 7 (13.2%) of those treated actively needed re-admission, the majority belonging to those evacuated soon after admission.

In Type II, the average stay of 9 who had conservative treatment was 18.5 days as against 13.2 days for 7 who had evacuation in the presence of extra-uterine spread. However, the gain in hospital stay in the latter group was lost in the fact that only 2 had no complications. As against one (11.1%) treated conservatively and who returned for colpotomy, in 5 (71.4%) there were exacerbations, three continued with high temperature of a spiking nature, one developed generalised peritonitis and septicaemia and in one who had pelvic peritonitis, haemorrhage necessitated curettage, death occurred due to pulmonary embolism. Type III were treated conservatively except for 2 laparotomies for perforation of the intestines and one colpotomy.

Deaths. Eight of the nine deaths occurred in Type III.

A history of interference was given by 5 (55.5%). One died due to tetanus, and 5 were associated with septicaemia, 3 dying within 17 hours of admission with one being associated with endotoxic shock. The rest died between 4-21 days. Embolic phenomena were seen in 2 cases, one who died of pulmonary embolism and one with septicaemia and metastatic lung abscesses.

Discussion

Type I formed 69.1% in this series. If treated early these respond well. However, these cases pose a controversial problem. Bobrow and Friedman (1958) feel that the uterus must be emptied and delay in curettage is dangerous. Fitzgibbon (1947) believed in early emptying and other interventionists like Stallworthy believe in the aggressive line. Achari *et al* (1965) found early curettage controlled infection with less morbidity and a shorter stay. Ramsay *et al* (1955), however, advocate a conservative policy and in his series only 8% needed evacuation. Burnett (1952), however, found exacerbation in 50% in Type I if curettage was done while the patient was febrile, and of these 13.2% developed a spread; while if sepsis was controlled before curettage, 9.8% had exacerbations with spread in only 3.2%. In this study, in Type I, 94.3% evacuated during the pyrexial period continued being

pyrexial with 14.3% having exacerbation and spread in one (2.8%), while when curettage was done in the apyrexial period only (7.1%) developed post-curettage pyrexia and 93% remained apyrexial, and when done during the pyrexial phase 66.6% continued with pyrexia. This suggests that though the average stay was a little longer in the group who were afebrile, the post-operative spread was less and 93% remaining apyrexial. In Type II, the group treated conservatively spent more time in hospital but did better than those treated surgically. Even with simple evacuation 71.4% had exacerbation, with spread into septicaemia and generalised peritonitis in one and when haemorrhage necessitated curettage, death due to pulmonay embolism resulted in another. Hence immediate interference is not necessarily the ideal form of therapy and even simple evacuation does not bring about defervesence as seen in 94.3% who continued with pyrexia after evacuation and 66% after dilatation and curettage in Type I. It may cause exacerbations as it did in 14.3% of Type I who were evacuated and 71.4% of Type II. Prior antibiotic coverage for 24-48 hours may have necessitated a slightly longer period of hospitalisation but 93% were afebrile and remained so with less spread. Bose *et al* had more morbidity and mortality in immediate surgical intervention. Goodno *et al* (1963) recommend antibiotic therapy till the patient is afebrile before the uterus is emptied, while Browne and Browne (1964) waited at least 4 days and till signs of pelvic peritonitis disappeared while Studdiford (1950) also does not advise surgical evacuation in the presence of spreading infection.

Threatened abortions were managed expectantly. Goodno *et al* (1963) recommend that one should not feel obligated to intervene hastily with curettage on the premise that surgical elimination of the septic intrauterine contents is essential. The behaviour of patients harbouring Staph. pyogenes proved an interesting feature; hospitalisation was found to be increased from 6.2 days to 9.2 days in Type I cases and when septicaemia was caused by it, the same picture of prolonged illness was found with a tendency to metastatic phenomena. Ramsay and Vahram (1951) studying cases of staphylococcal septicaemia noted "that a local focus of infection may be present for some time before the condition became generalised and that coagulase positive staphylococci on cervical culture is serious and demands a careful search for embolic foci". According to Smith *et al* these staphylococci require a much higher dosage of pencillin as they clump together and acquire a protective covering of fibrin which renders them inaccessable.

This study reveals that while the active line is better in Type I cases, prior antibiotic coverage gives better results. One is inclined to agree with Walls (1960) who suggests that the results are better when the patient is relatively afebrile before the uterus is emptied. With spreading infection the conservative line certainly seems to give better results except when haemorrhage or drainage of pus indicates a surgical management.

In conclusion it was found that the incidence of septic abortion was 3.7%, with a septic abortion death

rate of 0.28% among all abortions. Of 104 cases 13% were nulliparous and 31.7% had more than 4 children. A history of interference was given by 40.2%. The average stay was 9.7 days with 6.2 days in Type I. Evacuation or curettage was done in 39.2% with 70.6% of Type I cases being treated actively. A comparative study of the management showed that the hospital stay was almost equal in all types of managements, but in the presence of sepsis when evacuation or D & C was done 94.3% and 66.6% respectively continued being pyrexial while 14.3% had exacerbation. When D & C was done in the afebrile stage, 93% remained apyrexial and only 7.1% had exacerbation. Surgical intervention after antibiotic cover for 24-48 hours, in the presence of sepsis seems a better form of management.

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References

1. Achari, K. and Khanam, W.: J. Obst. & Gynec. India, **15**: 247, 1965.
2. Bobrow, M. L. and Friedman, S.: Am. J. Surg. **95**: 938, 1958.
3. Bowne, F. J. and Browne, J. C. Meclure: Post graduate Obst. & Gynce. ed. 2, London 1964, Butterworth, p. 643.
4. Burnett, B. C.: Brit. Med. J. **I**: 886, 1952.
5. Fitzgibbon, G.: J. Obst. & Gynce. Brit. Emp. **54**: 838, 1947.
6. Goodno, J. A., Cushner, J. M. and Molumphy, P. F.: Am. J. Obst. & Gynce. **85**: 16, 1963.
7. Jones, W. N., Howe, E. H. and French J. H.: Am. J. Obst. & Gynce. **67**: 825, 1954.
8. Knapp, R. C., Platt, M. A. and Douglas, R. G.: Obst. & Gynce. **15**: 346, 1960.
9. Neuwirth, R. S. and Friedman, E. A.: Am. J. Obst. & Gynec. **85**: 24, 1963.
10. Perera, W. S.: Brit. Med. J. **1**: 705, 1961.
11. Ramsay, A. M., Brown, E. H. and Mannets, S. M.: Brit. Med. J. **2**: 1239, 1955.
12. Ramsay, A. M. and Vahram, J.: Lancet. **1**: 425, 1951.
13. Studdiford, W. E.: Progress in Gynec. Vol. 2, Meigs & Sturgis Heineman, London, 1950, p. 437.
14. Walls, L. A.: Am. J. Obst. & Gynec. **79**: 510, 1960.
15. Wilson, Smith and Hale: Brit. J. Exp. Path. **26**: 209, 1945.