Management of incomplete abortions at South African public hospitals

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Objective. The objective of this report was to review and describe the management of incomplete abortion by public sector hospitals.

Design. A descriptive study in which data were collected prospectively from routine hospital records on all women admitted with incomplete abortion to a stratified random sample of hospitals between 14 and 28 September 1994.

Setting. Public sector hospitals in South Africa.

Patients. Women with incomplete abortions.

Main outcome measures. Length of hospital stay, details of medical management, details of surgical management, determinants of the above.

Main results. Data were collected on 803 patients from the 56 participating hospitals. Of these, 767 (95.9%) were in hospital for 1 day or more, and 753 (95.3%) women underwent evacuation of the uterus. Sharp curettage was the method employed in 726 (96.9%) and general anaesthesia was used for 601 (88%) of the women requiring uterine evacuation. Antibiotics were prescribed for 396 (49.5%) and blood transfusions were administered to 125 (17%) women. Statistical analysis showed length of stay to be longer in small hospitals (under 500 beds) and when the medical condition was more severe. Antibiotic usage and blood transfusion were more common with increasing severity and a low haemoglobin level on admission. However, some inappropriate management was identified with regard to both.

Main conclusions. It is suggested that uncomplicated incomplete abortion can be more effectively and safely managed using the manual vacuum aspiration technique with sedation/analgesia as an outpatient procedure. Attention should be directed at the introduction of this management routine at all types of hospital and to the ensuring of appropriate management of women with complicated abortion.

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Admissions for incomplete abortion constitute a major proportion of the gynaecology workload of public sector hospitals in South Africa.[1,2] The required management may be simple — evacuation of the uterus for an uncomplicated incomplete abortion, or complex — intensive supportive care and abdominal surgery for severe postabortal sepsis. Internationally and in South Africa significant morbidity and mortality result from unsafe abortion.[3,4] This term includes induced abortions procured in unsafe circumstances and spontaneous abortions which are not timeously or appropriately treated. This morbidity and mortality could be reduced by immediate and effective treatment of unsafe abortions in addition to a review of abortion legislation. Recent publications by the World Health Organisation emphasise the need for priority attention to management of this common problem.[5]

The method of evacuation of the uterus and the requirements for anaesthesia/analgesia in incomplete abortion have been reviewed in the last decade. Most studies suggest that suction aspiration of products of conception is preferable to the conventional sharp curettage, in respect of safety and effectiveness.[6,7] This paper reports research that was undertaken in order to review the management of incomplete abortions by public sector hospitals in South Africa. The data were collected as part of a broader study of the epidemiology, economic costs and women's experiences of incomplete abortion in South Africa, the findings of which are reported in Rees *et al.*,[4] Kay *et al.*[8] and Jewkes *et al.*[9]

Methods

A national hospital-based study was conducted that prospectively collected descriptive data on all women presenting to public sector hospitals with incomplete abortions during the last 2 weeks of September 1994. All public hospitals with more than 500 beds were included together with a random sample of hospitals with fewer than 500 beds stratified by province. A total of 61 hospitals were included in the study (19 hospitals with up to 500 beds, 21 hospitals with between 501 and 799 beds, and 21 hospitals with 800 beds or more). Full details of the methods can be found in Rees *et al.*[4]

Information was collected on all women presenting with incomplete abortions at all possible sites in the hospital, e.g.

gynaecology emergency units, medical wards, female wards, intensive care units. A clinician co-ordinated the data collection in each hospital using a standardised data capture sheet which was completed by medical staff on admission and discharge of the patients. The information collected was no more than that routinely recorded for such patients on record sheets. It included, for the purpose of this analysis, information on length and site of hospital stay, method of uterine evacuation, anaesthesia and/or analgesia for the procedure, use of antibiotics and blood, and details of any further treatment measures.

Hospital management was therefore described for the whole sample. For the purpose of further analysis, hospitals were subdivided into three categories according to bed size (1 = under 500 beds, 2 = 501 - 799 beds, 3 = 800+ beds) and patients into three categories of severity (low, moderate and high) which were agreed to by the study's reference group. The details of the severity categorisation are shown in Fig. 1. Management of the different sub-categories was then reviewed and compared.

Low	Temp. ≤ 37.2°C	*and*
	No clinical signs of infection	*and*
	No system or organ failure	*and*
	No suspicious findings on evacuation	
Moderate	Temp. 37.3 - 37.9°C	*or*
	Offensive products	*or*
	Localised peritonitis	*or*
High	Temp. ≥ 38°C	*or*
	Organ failure	*or*
	Peritonitis/septic shock	*or*
	Death	*or*
	Pulse ≥ 120	*or*
	Foreign body/mechanical injury on evacuation	

Fig. 1. Severity categories.

Results

Fifty-six hospitals participated in the study, a response rate of 92%. Questionnaires were returned on a total of 803 patients from these hospitals. Overall 66.4% (533) of cases were of low, 18.6% (149) of moderate and 15% (121) of high severity. Sixty-one per cent were first-trimester abortions. The case severity pattern and trimester status of patients managed by each type of hospital are shown in Table I.

Table II summarises the management of patients with incomplete abortions at all hospitals. Evacuation of the uterus was done by sharp curettage in 726 cases (96.4%) and by manual vacuum aspiration (MVA) in 21 (2.8%). The latter procedure was never used in the smaller hospitals. The dominant method of analgesia in all types of hospitals was general anaesthesia, although the proportion who had sedation/analgesia was significantly greater for smaller hospitals (Table III).

Ninety-five per cent (748) of the patients were admitted to some type of hospital ward. Of these, 119 (15%) were managed initially and some completely in a short-stay observation unit. Evacuation of the uterus (performed in 95.3% of patients) took place in a main operating theatre in 668 (89.3%) patients and in a casualty or side-room theatre in 71 (9.5%) patients.

Table I. Severity and trimester status of patients managed in different categories of hospital

	Hospital category					
	1 (500 beds)		2 (501 - 799 beds)		3 (800+ beds)	
	No.	%	No.	%	No.	%
Severity status*						
Low	49	76.6†	51	65.4	333	65.6
Moderate	8	12.5	39	20.1	102	20.1
High	7	10.9	41	14.4	73	14.4
Total	64		231		508	
Trimester status						
First (< 12 wks)	46	71.9	145	62.8	301	59.3
Second (13 - 21 wks)	8	28.1	86	37.2	207	40.8
Total	64		231		508	

* See Fig. 1 for definitions.
† Column %.

Table II. Description of hospital management (*N* = 803)

Management aspect	No.	%
Length of hospital stay		
< 1 day	34	43.2
1 day	346	43.1
2 - 4 days	379	47.3
5 days	42	5.3
Evacuation of uterus	753	95.3
By sharp curettage	726	96.4
By MVA	21	2.8
Not specified	7	0.8
Anaesthesia/analgesia for evacuation	737	
General anaesthesia	601	82
Sedation/analgesia	126	17
Other/not specified	10	1
Antibiotics given	396	49.5
Oral	130	32.8
Intravenous and/or suppository	266	67.2
Blood transfusion	125	17
Further surgery	34	5.1

Table III. Use of analgesia and anaesthesia in different hospital categories

	General anaesthesia		Sedation/ analgesia		*P*-value (chi-square)
	No.	%	No.	%	
Hospital category					0.001
1 (< 500 beds)	35	66*	18	34	
2 (501 - 799 beds)	182	88	26	12	
3 (800+ beds)	384	82	82	18	
Total	601		126		

* Row %.

Five patients were admitted to an intensive care unit, 2 requiring ventilation and 1 requiring haemodialysis. Thirty-four (5.1%) patients required additional surgery; 24 underwent re-evacuation, 2 colpotomy and drainage of an abscess, 2 a hysterectomy and 1 a laparotomy for pelvic abscess.

Data on the determinants of the length of hospital stay are presented in Table IV. Overall length of stay increased with increasing severity status (Table IV). However, 31.8% (14) of patients staying over 5 days were in the lowest severity category, while 31.4% (38) of the patients in the high-severity category only stayed 1 day. Trimester status was not statistically significantly associated with length of stay, but there was a weak association, with 49% of first-trimester, and 44.7% of second-trimester abortion patients staying less than a day. The same table shows that length of stay was not significantly different for patients who had general anaesthesia as opposed to sedation/analgesia for their evacuation. Small hospitals, i.e. category 1 hospitals, tended to keep patients for longer than medium and large hospitals, although, if anything, they had a lower admission rate of high-severity or second trimester patients (Table I).

Blood transfusion was positively correlated with a low haemoglobin level on admission, second-trimester status and high severity (Table V). However, 4 (10.3%) patients with haemoglobin levels below 6.5 g/dl did not receive blood and 12 (3.2%) women with haemoglobin levels above 10.5 g/dl did receive blood. These patients were managed in the larger two hospital categories. Use of blood was less common in the small hospitals.

Use of antibiotics increased with increasing case severity (Table VI). However, 24.8% (130) of patients receiving

Table IV. Relationship of length of hospital stay to severity status, trimester status, hospital status and analgesia/anaesthesia for evacuation

	Length of stay						
	0 - 1 days		2 - 4 days		> 5 days		
	No.	%	No.	%	No.	%	*P*-value
Severity status*							< 0.0001
Low	290	54.4	229	43.0	14	2.6	
Moderate	52	34.9	89	59.7	8	5.4	
High	38	31.4	61	50.4	22	18.2	
Trimester status							0.47
First (< 12 wks)	241	49.0	226	45.5	25	5.1	
Second (13 - 21 wks)	139	44.7	153	49.2	19	6.1	
Hospital category							< 0.0001
1 (< 500 beds)	20	31.3	36	56.2	8	12.5	
2 (501 - 800 beds)	75	32.5	140	60.6	16	6.9	
3 (> 800 beds)	285	56.1	203	40.0	20	3.9	
Analgesia/anaesthesia for evacuation							0.64
General anaesthesia	285	47.4	281	46.8	35	5.8	
Sedation/analgesia	58	46.0	64	50.8	4	3.2	
Other/none	13	54.2	11	45.8	0		

* See Fig. 1.
† Column %.

Table V. Relationship of blood transfusion to haemoglobin level, trimester status, severity category and hospital category

	Blood transfusion				
	Yes		No		
	No.	%	No.	%	*P*-value (chi-square)
Haemoglobin (g/dl)					< 0.0001
< 6.5	35	89.7†	4	10.3	
6.6 - 8.5	51	79.7	13	20.3	
8.6 - 10.5	26	11.4	203	88.6	
> 10.5	12	3.2	363	96.8	
Trimester status					0.0110
First (< 12 wks)	65	14.3	391	85.7	
Second (13 - 21 wks)	60	21.8	215	78.2	
Severity status*					< 0.0001
Low	57	11.7	432	88.3	
Moderate	19	14.4	113	85.6	
High	49	44.5	61	55.5	
Hospital category					0.0790
1 (< 500 beds)	5	7.8	59	92.2	
2 (501 - 800 beds)	44	19.6	181	80.4	
3 (> 800 beds)	76	17.2	366	82.8	

* See Fig. 1.
† Row %.

Table VI. Relationship of antibiotic usage and severity status, trimester status and hospital category

	Antibiotic usage								
	None		Oral		Intravenous		Suppository		
	No.	%	No.	%	No.	%	No.	%	*P*-value‡ (chi-square)
Severity status*									0.0001
Low	335	62.9†	69	12.9	130	24.8	51	9.6	
Moderate	51	32	29	19.5	74	49.7	28	18.8	
High	18	14.9	32	26.4	84	69.4	39	32.2	
Total	404		130		288		118		
Trimester status									< 0.31
First (< 12 wks)	255	51.8	78	18.9	169	41	67	16.3	
Second (13 - 21 wks)	149	47.9	52	16.7	119	38.3	51	16.4	
Total	404		130		288		118		
Hospital category									< 0.14
1 (< 500 beds)	37	57.8	15	23.4	17	26.5	1	1.6	
2 (501 - 800 beds)	105	45.7	44	19	92	39.8	29	12.6	
3 (> 800 beds)	262	51.8	71	14	179	35.2	88	17.3	
Total	404		130		288		118		

* See Fig. 1.
† Row %.
‡ Comparison of 'none' and 'any' antibiotics given.

intravenous antibiotics were in the low category. Eighteen (14.9%) high-severity patients and 51 (32%) moderate-severity patients did not receive any antibiotics. First-trimester patients were no more likely than second-trimester patients to receive antibiotics at all, but if they did they were more likely to receive a combination thereof. The use of oral antibiotics was more common and the use of parenteral antibiotics less common in small hospitals than in larger hospitals, but the differences were not statistically significant.

Discussion

The results show that the dominant management of incomplete abortions by public sector hospitals in South Africa is by uterine evacuation with sharp curettage under general anaesthesia in an operating theatre. While 85% of patients have incomplete abortions of mild or moderate severity, the findings suggest that fewer than half of patients have a length of stay under 24 hours and do not receive antibiotics.

A minority of hospitals performed uterine vacuum aspiration, and these were only the larger hospitals; smaller hospitals tended to use sedation/analgesia more commonly and length of stay for low-risk patients tended to be longer.

The aim of management of incomplete abortion should be to provide care that is cost-effective, safe, appropriate, available and acceptable.

These results are not in keeping with current recommendations on the management of low-severity incomplete abortion suggested by the WHO in a recent publication that gives practical guidelines on abortion management.[5] This document suggests the use of: (*i*) MVA for uterine evacuation rather than sharp curettage; (*ii*) mild analgesia and/or sedation rather than general anaesthesia; and (*iii*) day-case outpatient procedures not utilising theatre space. This document draws heavily on the work of the International Projects Advisory Service (IPAS) which has pioneered the development of MVA, which is a simpler technology. This is a hand-held syringe which can be used to evacuate the uterus by suction without general anaesthesia as an outpatient procedure. MVA programmes have been developed successfully in several countries.[10-12] Studies in Mexico and Kenya have demonstrated considerable reduction in resource use and costs when MVA programmes have been instituted.[13] At Kalafong Hospital in South Africa, uterine evacuation as a side-room procedure soon after admission was found not only to reduce costs but also to reduce the requirement for blood transfusion, presumably because the time between admission and procedure was reduced.[14] The same unit is now routinely using MVA.[15] Most MVA studies indicate that general anaesthesia is not necessary for the procedure; either mild sedation/analgesia or nothing at all is used. However, two studies suggest that a high degree of pain is experienced by some women when no anaesthesia is used.[11,15] More research into the most appropriate analgesic is necessary. It is also important to ensure that new methods of management are acceptable to women.

A relatively large proportion of women received a blood transfusion (17% of the sample). As might be expected, those receiving transfusion were more likely to be of high-severity status, to have a low haemoglobin concentration and to have second-trimester abortions. However, the results also suggest some inappropriate use of blood in the 12 women with haemoglobin levels over 10.5 g/dl. Whereas this could be in response to bleeding after the admission haemoglobin measurement, it could be due to the requirements of general anaesthesia. It is notable that usage of blood was lower in smaller hospitals. With concerns for cost-effective patient management and an increasing prevalence of HIV/AIDS, it is important that blood not be given unnecessarily. It is also important that it be available when really necessary.

The high rate of antibiotic use reflects the high morbidity associated with incomplete abortion found in this study, but the results also suggest that there is considerable inappropriate usage of antibiotics. The use of intravenous antibiotics for low-severity cases with no evidence of infection is unnecessary and not cost-effective. It may be policy of some hospitals to give prophylactic antibiotics pre-evacuation. However, oral antibiotics should suffice for prophylaxis where there are no signs of sepsis. It is even more worrying that 15% of women with indicators of serious infection did not receive any antibiotics. Such patients always warrant parenteral antibiotics. The reasons for their not receiving antibiotics are unclear; there is a possibility that a recording error took place. Although the small hospitals cared for only slightly fewer high-severity patients than the larger hospitals, their use of intravenous antibiotics was considerably lower and their use of suppositories extremely low compared with larger hospitals. This may be related to differences in clinical judgement or protocol but it may also reflect a limited availability of resources in such hospitals. The WHO emphasises the importance of strengthening the first referral level (i.e. level 1 hospital) in its abortion management.[5,16] Cases of uncomplicated incomplete abortion could be adequately managed at this level, thus improving the immediacy of treatment and reducing the need for onward referral.

This study did not collect data on the provision of postabortion contraceptive counselling since this information was not routinely available in case notes. The importance of such a service cannot be overemphasised and it should be an integral part of abortion management.[17,18]

In future the management of incomplete abortion, as well as legal abortion, may involve a greater reliance on medical methods as newer drugs become available and are found to be effective.[19] To date the only such study performed in South Africa does not demonstrate the same success as overseas studies in respect of complete evacuation.[20]

In conclusion, we think the management of uncomplicated incomplete abortion could be improved to make it cost-effective and efficient. In particular there is a need for more rational prescribing of antibiotics, use of blood transfusion and shortening length of hospital stay. The use of general anaesthetics could be reduced and sharp curettage replaced by MVA. The aggressive management of high-severity cases would seem lacking on some occasions and clear management protocols may be necessary. More attention must be directed at the small hospitals, which are often constrained by lack of resources and personnel. Management of low- and moderate-severity cases is appropriate for this level and the initial resuscitation of high-

severity patients. The academic and regional hospitals could support smaller hospitals in optimising their management of abortion patients. It is hoped that this survey of current hospital practice can favourably influence future practice.

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