Therapeutic Abortions

A Review of 567 Cases

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■ *Five hundred sixty-seven therapeutic abortions have been reviewed at the University Hospital of San Diego County. The primary source of referral was through local counseling agencies within the area. Most of the patients were unmarried primigravidas between the ages of 15 and 24. Increases in complications, in length of stay in hospital and in cost were directly related to delay in obtaining an abortion. The maximum psychological impact was felt before admission and at the time of discharge. It is felt that programs must be devised which are moral, ethical and efficacious and which serve not only to help the patient obtain an abortion within the first trimester but also to assist, direct and educate that stressed patient in need.*

ON NOVEMBER 8, 1967, the California statute concerning abortions became effective. It permits abortion under two general provisions: (1) when "there is substantial risk that continuance of the pregnancy would gravely impair the physical or mental health of the mother" and (2) when "the pregnancy resulted from rape or incest." It further requires that the abortion be performed by a licensed physician, in a hospital accredited by the Joint Commission on Accreditation of Hospitals, and only after approval by a committee of the hospital's medical staff. There is no residency restriction and there are no provisions as to fetal indications for termination of pregnancy.[1] Repeals of abortion acts in Hawaii, District of Columbia, Colorado and New York have heralded demands for similar changes in other states.

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In California in 1968, an average of 15 therapeutic abortions for each 1,000 live births were performed (5030 abortions, 339,323 live births). During the first nine months of 1969, there were 35 abortions per 1,000 live births, more than twice the rate of the previous year (9169 abortions, 264,750 live births). With abortion law reform or repeal, this ratio appears to be increasing rapidly. However, 35 abortions per 1,000 live births is still lower than the ratio found in other countries with established liberal abortion laws, namely, Sweden (ratio of 51 per 1,000 live births), Denmark (60 per 1,000), Finland (61 per 1,000) and decidedly lower than Japan (912 per 1,000), Czechoslovakia (344 per 1,000) and Hungary (1,356 per 1,000).[2] Applying the rates developed by Abernathy et al[3] to the California population, estimates of total abortions for the state in 1968 were calculated to be 81,600—more than 76,600 of them illegal. This suggests that therapeutic abortions were approximately

six percent of California's total induced abortions in 1968, and about 12 percent of the total in 1969.

To cope with the problem of abortion on request, it is essential that adequate programs be devised prospectively to manage the logistics of hospital and operating room time and to be prepared to treat the postabortal mental stresses. To this end, we have analyzed our experiences with therapeutic abortions performed at University Hospital of San Diego County, and this analysis serves as the basis for this report.

Material and Method

This study consists of 567 consecutive therapeutic abortions performed at the University Hospital of San Diego County between December 1967 and December 1969. Data on patients aborted in that time were obtained by chart review and, when necessary, by communication with the attending physician. Each case was reviewed for the following factors: patient status (private or clinic), indication for therapeutic abortion, age at time of abortion, marital status, race, number of pregnancies, method of payment, type of abortion done, length of stay in hospital, length of gestation at time of abortion, total fluid loss (estimated or measured for dilatation and curettage only), operative and postoperative complications, and follow-up.

The applicant for therapeutic abortion was first seen by the obstetrician-gynecologist for confirmation of pregnancy. She was then referred to either a psychiatrist, internist or the district attorney, depending on the indication for abortion. The case was then presented to the Therapeutic Abortion Committee of the University Hospital of San Diego County, which consists of two obstetrician-gynecologists, two psychiatrists and an internist. The average time between the patient's visit to the obstetrician-gynecologist and admission for abortion was two weeks.

Three basic procedures were utilized for therapeutic abortion:

1. *Dilatation and suction curettage.* This was performed on all patients of 13 weeks' gestation or less and in approximately 50 percent of all patients at 14 weeks' gestation. All patients were admitted to hospital and taken to surgery the following day. Anesthesia was by intravenous thiopental, followed by light nitrous oxide and oxygen inhalation anesthesia. After examination under anesthesia, the uterine cavity was sounded and the cervix was progressively dilated with either Hanks or Pratt dilators. (In a few cases the Vibrodilator* was employed, but repeated difficulties, to be described, ultimately led to abandonment of this technique.) Evacuation of the products of conception was then effected by the use of a high vacuum, high capacity pump connected to a suction curette.* The products of conception were inspected and forwarded for histologic review after termination of the procedure. In all cases between December 1967 and September 1969, the blood loss was estimated by the physician. Between October 1 and the end of December 1969, this was accomplished by the calibrated collection bottle measurement on the suction apparatus.

2. *Amniocentesis followed by intra-amniotic injection of hypertonic saline solution.* This method was employed in 76.5 percent of all patients over 14 weeks' gestation. In most instances it was delayed until 16 weeks' gestational size to facilitate ease of procedure. The patient was brought to the ward examining room and intravenous 5 percent dextrose in water started. Patients were given intravenous diazepam (Valium®) 10 mg. After lower abdominal preparation with povidone-iodine (Betadine®) solution, local anesthesia was employed, using lidocaine injection. A No. 16 needle containing a thin metal obturator and jacketed by a teflon catheter was then introduced through the anterior abdominal wall into the amniotic sac. The obturator was removed to ascertain free flow of amniotic fluid, after which the needle was removed, leaving only the catheter in place. The amniotic fluid was allowed to exit freely via the catheter without aspiration. Fifteen to 200 ml of amniotic fluid were removed, followed by slow injection of 150 to 200 ml of 20 percent sterile saline solution. The patient was observed closely during and after the procedure and was returned to her room. Intravenous fluids were continued, and if labor did not ensue within 10 hours, oxytocin (20 units per liter of 5 percent dextrose in water) was started.

3. *Primary hysterotomy or hysterectomy.* This was performed in 23.5 percent of all patients of 14 weeks' gestation or more. It was selected

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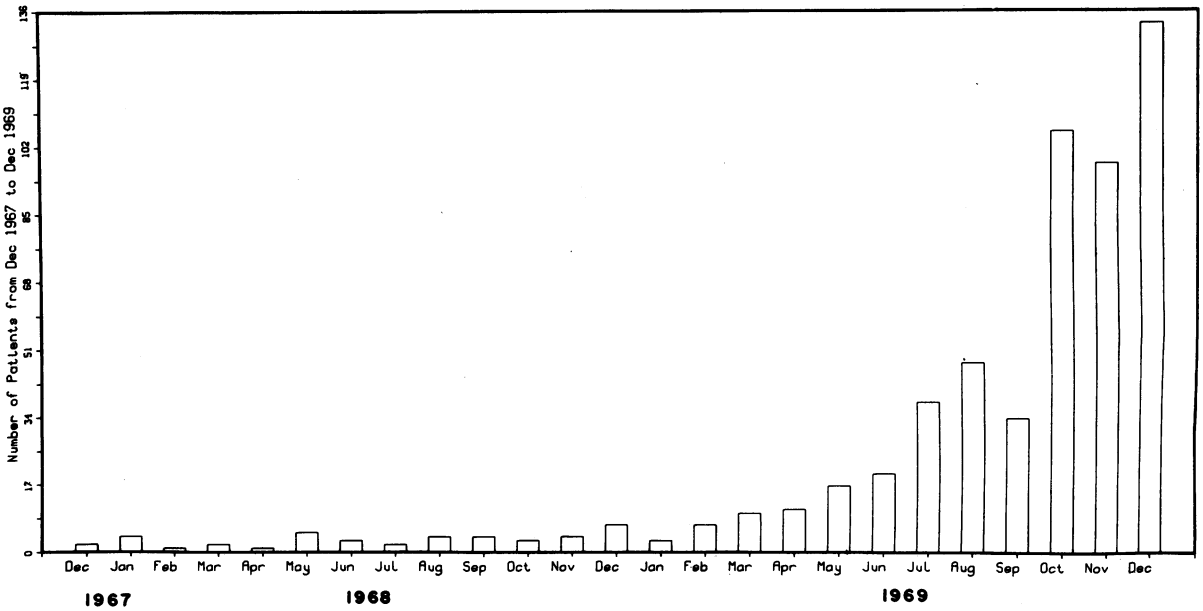

Chart 1.—Growing incidence of therapeutic abortions in period 1967-1969 at University Hospital of San Diego County.

either because of personal preference on the part of the attending physician or because of the desire of concomitant sterilization by the patient. In a number of cases in which the intra-amniotic injection of saline solution failed to result in passage of the fetus, a secondary hysterotomy or hysterectomy was performed.

Results

Type of Abortions Performed

Of 567 abortions, 431 (76 percent) were performed by dilatation and curettage, 104 (18.3 percent) by hypertonic saline solution injection, and 32 (5.7 percent) by primary hysterotomy or hysterectomy.

Demographic Factors

Incidence. During the period under review, the number of cases per month steadily increased, with significant rises noted in late spring and autumn of 1969 (Chart 1).

Patient Status. Of the patients treated, 480 (84.6 percent) were attended by private physicians and 87 (15.4 percent) were referred from the gynecology clinic. From December 1967 through December 1968, the proportion of private patients was 61 percent. During the first eight months of 1969 this rose to 82 percent, and for the last four months of the study 89 percent of all patients who had abortions were private.

Indication. The vast majority of procedures (549 or 97.0 percent) were performed for mental health of the patient, only eight cases (1.3 percent) for medical indication and 10 cases (1.7 percent) for rape or incest.

Age. As to age distribution of the 567 patients, nine (2.3 percent) were under 15 years, 177 (31.2 percent) were 15 to 19, 297 (51.8 percent) were 20 to 29, 73 (12 percent) were 30 to 39 and 11 (2.7 percent) were 40 and over.

Marital Status. Single patients (never married) accounted for 369 or 65 percent of the total group. Patients already married at the time of abortion accounted for 94 or 16.5 percent and the category listed as "other"—that is, widowed, separated or divorced—accounted for 104 or 18.5 percent. Unmarried patients made up 45 percent of the group from December 1967 through December 1968. This proportion rose to 58 percent for the first eight months of 1969 and in the last four months of the study to 70 percent. During the same periods, the married patients accounted for 21 percent, 25 percent and 13 percent respectively.

Race. Of the total population studied, 525 (92.5 percent) were Caucasian, 25 (4.4 percent) were Negro and 17 (3.1 percent) were "other," mainly Mexican-American. For comparison, the last 567 obstetrical deliveries performed at this hospital were distributed as follows: Caucasian

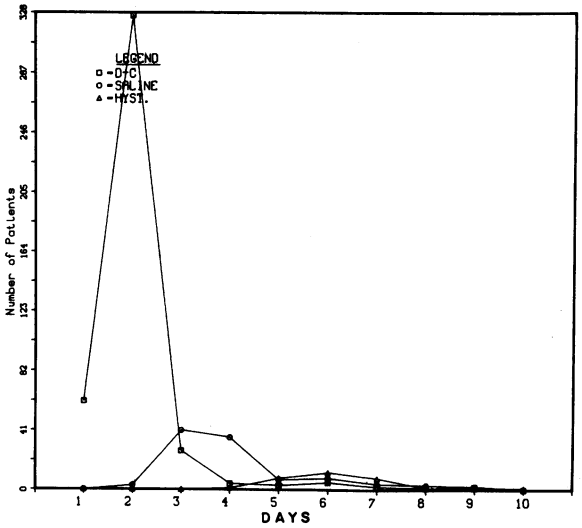

Chart 2.—Length of stay in hospital for therapeutic abortion in relation to method used.

40.1 percent, Negro 8.2 percent and "other" (again mainly Mexican-American) 51.7 percent.

Number of Pregnancies. Of the 567 patients, 328 (57.8 percent) were primigravidas; 144 (25.4 percent) were gravida 2 or 3; and 95 (16.8 percent) were gravida 4 or more.

Method of Payment. Title 19 (Medi-Cal) subsidized care in 247 or 43.5 percent; individual private payment accounted for 209 (36.8 percent); unknown payment type (as shown in the official log) 104 (18.4 percent); "Other" was seven (1.3 percent). In no case did private plan insurance pay for the procedure.

Factors Related to Delay Between Diagnosis and Termination of Pregnancy

Duration of Time in Hospital. The majority (75 percent) of patients who had dilatation and curettage were inpatients for 48 hours. Seventy-five percent of those aborted by saline solution inductions were in hospital three to four days, while in those undergoing hysterotomy or hysterectomy, 52 percent were in hospital for five to six days and 38 percent for seven or more days (Chart 2). No significant correlation was found between duration of hospital stay and age. In comparing duration of hospital stay to uterine size at the time of abortion, it was noted that there was a significantly longer stay for patients 14 weeks or more in gestation, probably related to the increased number requiring hysterotomy or hysterectomy.

Duration of Gestation at Time of Abortion.

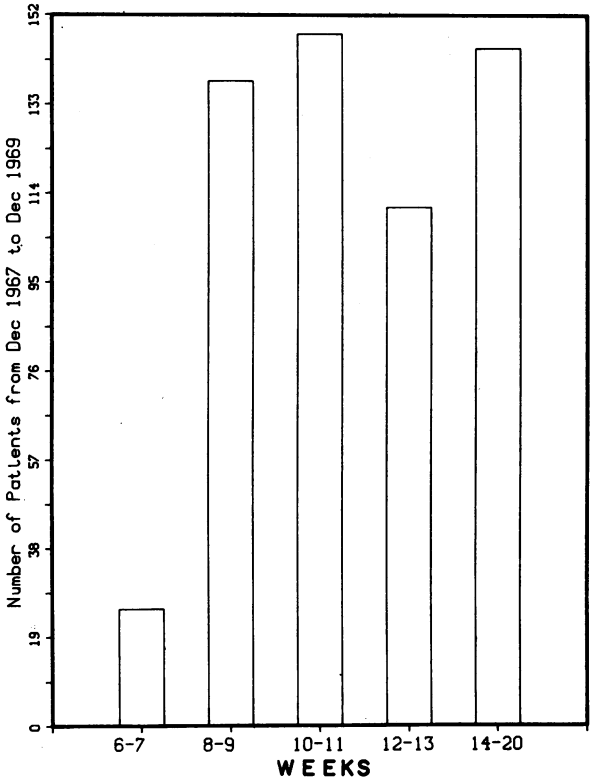

Chart 3.—Data on number of weeks of gestation (as determined by uterine size) at time of abortion.

Uterine size estimated by physical examination at the time of abortion (and stated in terms of estimated weeks of gestation) is shown in Chart 3. Twenty-five patients (4.4 percent) were six to seven weeks; 138 (24.3 percent) were eight to nine weeks; 148 (26.1 percent) were 10 to 11 weeks; 111 (19.5 percent) were 12 to 13 weeks and 145 (25.7 percent) were 14 to 20 weeks. When duration of gestation was matched with patient age, it was found that patients 30 to 39 years of age came to abortion earliest, followed by those 20 to 29, then 15 to 19, and lastly, those under 15. When duration of gestation was related to type of payment, it was apparent that the patient who requires Medi-Cal application and processing to finance her procedure is admitted to hospital later than the private-paying patient, while patients already on Medi-Cal at the time of conception enter earlier.

Fluid Losses Associated With Dilatation and Curettage for Abortion

There are no accurate, reproducible means of separating and calculating amniotic fluid volume for early gestation. Between six and 11 weeks,

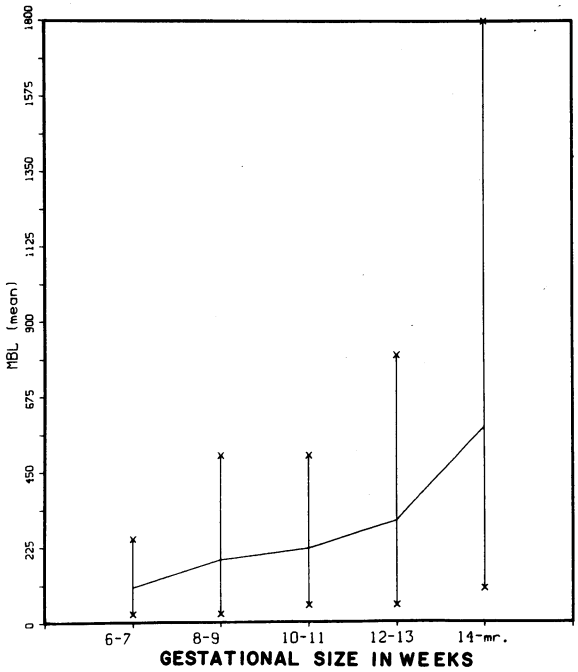

Chart 4.—Measured blood loss (MBL) related to length of gestation at time of abortion.

the average loss was approximately 200 ml, when estimated by the operating surgeon. At 12 to 13 weeks, this value rose to 280 ml, and at 14 weeks to just over 300 ml. By way of comparison, when measured fluid loss was studied (Chart 4) and related to gestational size, the means are as follows: six to seven weeks, 110 ml; eight to nine weeks, 180 ml; 10 to 11 weeks, 200 ml; 12 to 13 weeks, 300 ml; and 14 weeks, 560 ml.

Complications of Therapeutic Abortion

Table 1 shows operative and postoperative problems that occurred with each type of procedure.

Complications and Patient Age. Compared with the entire population at risk, there is no distinct age group with an increased operative risk. However, when postoperative complications are related to age, it was found that there was significant increased risk of postoperative problems in patients 30 years old and over. This group accounted for only 14.7 percent of the population, yet had 27.0 percent of all postoperative problems.

Complications and Duration of Gestation. Chart 5 relates operative problems to uterine size at the time of abortion. When compared with the total group, it is evident that interfer-

TABLE 1.—*Complications of Therapeutic Abortions*

Dilatation and Curettage for Therapeutic Abortion (431 Cases)

A. Operative Complications	*Percent of All D&C's Done*
Hemorrhage at surgery requiring transfusion	1.2
Tenaculum laceration of cervix requiring suture	2.3
Cervical laceration with Vibrodilator	0.2
Uterine perforation	1.2
Dilatation failure—Hysterotomy performed	0.2
Dilatation failure—later successful	0.2
Failure to evacuate products of conception	0.2
All Operative Complications	5.5
B. Postoperative Complications	
Temperature of 100.4°F or greater with no other positive findings	2.0
Endometritis	0.9
Peritonitis requiring laparotomy and further surgery	0.9
Repeat D & C for retained products of conception	0.9
Urinary tract infection (proven by culture)	0.3
Endometritis plus retained products of conception	0.5
All Postoperative Complications	5.5
Total Operative and Postoperative Complication Rate = 11.0%	

Hypertonic Saline Solution Injection for Therapeutic Abortion (104 Cases)

A. Operative Complications	*Percent of All Injections Done*
Saline failure—D & C done for abortion	6.7
Saline failure—Hysterotomy or hysterectomy done for abortion	13.4
Saline failure—Transvaginal saline injected	1.9
Total Operative Problems	22.0
B. Postoperative Complications	
Temperature of 100.4°F or greater with no other positive findings	3.8
Endometritis	0.9
Retained products of conception necessitating dilatation and curettage	8.6
Urinary tract infection (proven by culture)	2.8
Manual removal placenta with spinal anesthesia	0.9
Total Postoperative Complications	17.0
Total Operative and Postoperative Complication Rate = 39.0%	

Complications of Primary Hysterotomy-Hysterectomy vs. Hysterotomy-Hysterectomy Done after Saline Solution Failure

Primary Hysterotomy-Hysterectomy (32 Cases) (Percent)		*Secondary Hysterotomy-Hysterectomy (14 Cases)* (Percent)
	OPERATIVE:	
6.2	Hemorrhage at surgery requiring transfusion	7.1
	POSTOPERATIVE:	
43.5	Temperature of 100.4° or greater with no other positive findings	36.0
0.0	Endometritis post hysterectomy	14.3
0.0	Urinary tract infection	7.1
49.7	*Total Operative and Postoperative Complications*	64.5

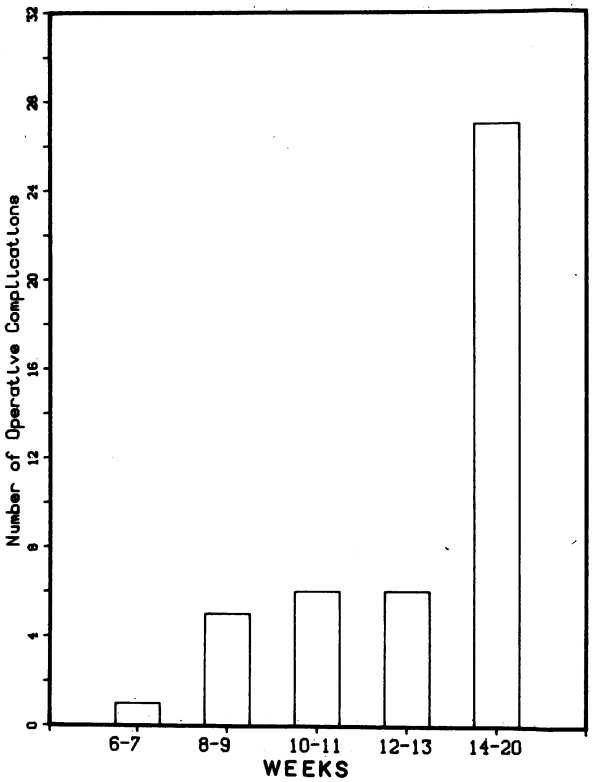

Chart 5.—Relation of operative complications to duration of gestation at time of abortion.

ence in gestations between six and 13 weeks results in a relatively low risk, but interference between 14 and 20 weeks, although accounting for 25.7 percent of procedures entailed 64 percent of all operative complications. When postoperative problems were evaluated with regard to uterine size, a similar complication rate occurred: patients who had abortion between 14 and 20 weeks had 62 percent of all postoperative problems.

Complications and Number of Pregnancies. The primigravidas had a relatively low risk. They were 57.8 percent of the study group, had 29 percent of the postoperative problems. Gravidas 4 or more had a significantly increased risk —16.8 percent of the study group, 47 percent of the complications.

Follow-up

Table 2 contains a detailed tabulation of the follow-up data received on 473 patients (83.3 percent) of the total population. Of interest is that of the 567 patients who had abortions there were only two known repeaters, both of whom had a second abortion at our hospital.

Comment

The increase in therapeutic abortions since the inception of the new California law in November 1967 can be attributed to referrals from various services such as clergy counseling, crisis centers and abortion counseling services within the San Diego area. These groups have referred patients to local sympathetic physicians rather than to out-of-state or out-of-country facilities as they might have done before. The increased number of abortions between August and September 1969 was attributed to the availability of Medi-Cal funding, with the resultant increase in private patient referrals. Social workers were employed to guide the needy patient through welfare, and cost was no longer an obstacle. At present, 89 percent of the total case study population is under private physician care as compared with 61 percent at the beginning of this study. The availability of funding was reflected by the increase in numbers of single persons seeking a legal abortion. Contrary to popular belief, even before the legalization of abortion it was mostly single women who sought termination of pregnancy. In our study, 70 percent of the entire series were between 15 and 24 years of age. In the final six months of the study this group has represented 74 percent. Psychiatric consideration was the indication for therapeutic abortion in 97 percent of this group. This finding is consistent with previous studies throughout California.[4]

Counseling and guidance services did not reach all segments of the population, as is evident by the fact that proportionally about twice as many Caucasians as Negroes and four times as many Caucasians as Mexican-Americans had abortions. The Mexican-American tolerates the social encumbrances of pregnancy out of wedlock more readily than do either black or white Americans. Mexican-Americans are more restricted by their religious beliefs and are not ostracized from the family unit, the care of the child being placed often in the hands of the grandparents. With them, therefore, abortion is more a social than a medicolegal problem. This study demonstrates the fact that as affluence increases so do the social restrictions and that forced morality might breed subjective immorality and guilt.

Although complications are of high incidence, they are generally innocuous in type. Neverthe-

TABLE 2.—*Follow-up Data on Patients after Therapeutic Abortion: San Diego Study*

A. Total Follow-Up of Patients

Total Number of Patients Aborted = 567

Number of Patients with Reported Follow-Up = 473 (83% of all cases)
- Patients with No Problem on Follow-Up = 392 (83% of all followed patients)
- Patients Who Failed Return Appointment = 49 (10.4%)
- Patients with Problem at Follow-Up = 32 (6.6%)

B. Follow-Up on Dilatation and Curettage

Total Number of Patients Aborted by D & C = 431

Number of Patients with Follow-Up = 356 (82.6% of all D & C cases)
- Patients with No Problem = 299 (84.0% of all followed patients)
- Patients Who Failed Return Appointment = 36 (9.8%)
- Patients with Problem at Follow-Up = 21 (6.2%)
  - Marked Depression—7 patients
  - Excess Bleeding—4 patients
  - Anemia—2 patients
  - Endometritis—5 patients
  - Parametritis—1 patient
  - Severe Cramps—1 patient
  - Urinary Tract Infection—1 patient

C. Follow-Up After Saline Injection for Abortion

Total Number of Patients Injected = 104

Number of Patients with Follow-Up = 91 (87.5% of all Saline cases)
- Patients with No Problem = 71 (78.0% of all followed patients)
- Patients Who Failed Return Appointment = 10 (11.0%)
- Patients with Problem at Follow-Up = 10 (11.0%)
  - Marked Depression—4 patients
  - Excess Bleeding—5 patients
  - Endometritis—1 patient

D. Follow-Up After Hysterotomy or Hysterectomy for Abortion

Total Number of Patients Aborted by Hysterotomy/Hysterectomy = 32

Number of Patients with Follow-Up = 26 (81.0% of all H/H cases)
- Patients with No Problem = 22 (84.0% of all followed patients)
- Patients Who Failed Return Appointment = 3 (12.0%)
- Patients with Problem at Follow-Up = 1 (4.0%)
  - Depression—1 patient

less, this study should serve to warn that physician who feels that storefront abortion clinics are without hazard. An analysis of these complications suggests that problems are directly related to the uterine size at the time of physical examination. The larger uterus, in turn, reflects delay in obtaining therapeutic abortion. Sixty percent of the operative and 63 percent of the postoperative complications occurred in pregnancies terminated after 14 weeks.

Evaluation of the postoperative complications associated with saline solution induction points to retained products of conception, with associated bleeding, as the major cause. In our follow-up study, five patients were readmitted to the hospital for dilatation and curettage because of bleeding after saline solution evacuation. The incidence of complications secondary to saline solution evacuation could be significantly decreased by routinely performing a postabortal curettage in all intra-amniotic inductions. The high morbidity associated with hysterotomy or hysterectomy could also be lowered by establishing adequate drainage at the time of operation.

Delay in admittance to hospital was attributed to: (1) the denial of pregnancy, especially by young patients of low parity; (2) misinformation concerning the availability of abortion; and (3) difficulty in obtaining funding without family involvement. Patients who had private funding or previous existing Medi-Cal support were admitted to the hospital in the early first trimester. Factors that were impossible to evaluate statistically as a source of delay were: (1) obtaining an appointment with an emphatic gynecologist; (2) a delay in obtaining a letter from two psychiatrists in the first 18 months of the study and one psychiatrist in the last six months; (3) awaiting the weekly meeting of the Therapeutic Abortion Board; and, finally (4) delay in obtaining beds and operating room time. Delay in abortion is not only directly related to an in-

creased complication rate later, but also to increased duration of hospitalization with resultant increased cost.

The value of performing abortion early also points to the hazard of individual state residency requirements which cause a delay in admittance to hospital. Forcing a patient to wait a three-month requirement places her in a higher risk category, and she may even attempt to seek an illegal abortion. This may account for the fact that the legalization of therapeutic abortions did not significantly decrease the number of patients admitted to The Johns Hopkins Hospital because of complications of illegal abortion.[4] Although there is no stated residency requirement in Maryland, the physicians attempt to limit the termination of pregnancy to residents of the state.

In order to protect resident teaching facilities, private patients should have the attending physician's history, physical, consent to operate form, and orders written before admission. Abortions may best be managed during the week-ends, when bed availability is at a maximum. Suction curettage could also be performed in separate outpatient operating and recovery room suites. If the pregnancy is beyond 12 weeks, hospital inpatient management is mandatory.

The maximum psychological effects of the situation are usually felt before admission and at the time of discharge. Patients who have dilatation and curettage under anesthesia can fantasize that the pregnancy never existed; not so the woman who labors and then delivers the product of conception in bed. It is quite evident to an observer that the patient undergoing abortion by labor induction is under a greater mental stress both before and after the delivery. When hysterotomy or hysterectomy is performed as a primary mode of terminating pregnancy, the patient has a scar to remind her of the occasion and upon which she can focus her guilt at various times throughout her life. It is for this reason that in-hospital social work referrals would benefit patients in need of guidance and would help reduce the guilt of those who equate the word abortion with illegality and sin. If the patient is ambivalent about terminating the pregnancy, or wishes to obtain future assistance for her anxiety state, psychiatric consultation is a necessity. It allows the patient to see the usefulness of the social-psychiatric supporting team rather than be forced to seek a psychiatric consultation to obtain an end—that is, abortion. It allows for a closer psychiatric evaluation and support for the patient and, more importantly, allows the psychiatrist to function in his chosen role as a consultant.

The patient tolerates well the environment of a pregnancy termination ward, even using it as a form of group psychotherapy. Therefore, workshop programs should be established to educate hospital employees to the problems and psychodynamics of patients undergoing therapeutic abortion. Patients who are reticent about involving themselves in groups should be placed in other positions. Follow-up teams should also be available to desensitize the patient before she is discharged and to stress the necessity for contraceptive measures. Programs must also be devised for "fetal fathers" who feel an equal need for guidance during this period of stress. Group therapy programs are currently being established at University Hospital and Crisis Clinics within San Diego.

Paramedical personnel alone cannot manage all the medical problems associated with therapeutic abortion. The patient must be treated in her entirety, and this encompasses a multitude of medical disciplines. We are now entering a gray zone of social change when abortion is no longer considered a moral or immoral issue, legal or illegal; but we are dealing with a problem which demands new concepts which will enable the distraught girl or woman to cope with the mental encumbrances imposed by present-day culture. Pregnancy termination programs must be moral, ethical and efficacious or the medical profession will have failed to evaluate the pulse and demands of society.

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