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The Problem of criminal abortion, Omaha, Nebraska

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THE PROBLEM OF CRIMINAL ABORTION

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INTRODUCTION

Though seldom openly discussed, the problem of criminal abortion in the United States is indeed significant. No study has yet been done to assess the true incidence of criminal abortion, however, estimates by experts in the field reveal figures that are appalling. The purpose of this paper is to acquaint the reader with the sociological, medical-legal, and true medical aspects of the problem. In preparation, I have reviewed the current literature pertinent to the subject and briefly summarized it.

Criminal abortion may be defined as an abortion produced or attempted by a patient or other person contrary to statutes of the particular state or country in which the act takes place; abortion without the sanction of the law. (1)

INCIDENCE

It has been stated that one out of five pregnancies ends in criminal abortion. This is based on the fact that there are approximately one million criminal abortions per year and a crude birth rate of about four million per year. Although this is an estimated figure, several studies agree with it, and some consider it a conservative estimate. It is commonly agreed that the number is substantial. (1, 2, 3) Of the one million, approximately five thousand die each year as a direct result of criminal abortion. (4)

Several studies reviewed by Rice-Wray revealed varied results. A study in the New Maternity Hospital in San Salvador, Chile, showed an incidence of about one criminal abortion per five live births.

This author held, however, that since only patients with complications were seen at this hospital, the true incidence must be four or five times as great, or about one criminal abortion for every live birth. Statistics from one Canadian hospital indicated that in 1961, there was one induced abortion for every 7.3 to 9.6 live births. Another study from Hamburg, Germany, states that there was approximately one induced abortion for every live birth. A Mexican hospital estimated that there was about one provoked abortion for every five live births in their area. (5)

The commonly pictured patron of the abortionist is the young, unmarried woman. More recent studies, however, show that most are married women who have children. (6) The highest rate among married women falls in the age groups of sixteen to twenty-five and forty to fifty. (7) Rates tend to be lower in the more devout religious groups as might be expected. (8) There is a higher rate in urban areas than in rural areas. An older study by Pearl in 1937, found that abortion rates were higher in users than in non-users of contraceptives. (9) He subsequently found that criminal abortion rate increases with education. Incidence also increases with parity, probably not due to the use of abortion as a means of sparing births, but instead to limit the ultimate size of the family. (10) Criminal abortion may also be related to social class in that it is often practiced to preserve the reputation and the abortionist always requires a good deal of money which the lower socio-economic groups cannot produce. As far as race is concerned, Negroes have a low incidence of induced abortion and a

high rate of spontaneous abortion and out-of-wedlock births. Higher rates for syphilis in this group are probably responsible for the increase in the rate of spontaneous abortion, and cultural factors more tolerant toward out-of-wedlock births would tend to account for the low induced abortion rate. (11)

Brunner and Newton, in studying forty-five hundred married and unmarried patients in a birth control clinic found that of those giving a history of induced abortion, 12 per cent were Catholic, 34 per cent were Protestant, and 33 per cent Jewish. These figures, of course, are not significant, and the patients could not be considered to be representative. (12) Brunner also found the rates to be about the same in patients of somewhat higher socio-economic standing, that is 27.1 per cent were Catholics, 23 per cent Protestant, and 26 per cent were Jewish. (13) Since there is no distinction between those who are active in their respective faiths and those whose identification with it is merely nominal, these figures can hardly be considered truly valid.

LEGAL, RELIGIOUS, AND ETHICAL ASPECTS

Laws vary from state to state, but most state laws prohibit abortion, "unless it is necessary to preserve the life of the woman or the child with which she is pregnant." It has recently been stated that less than one per cent of the abortions fall into this category. Reaction to existing abortion laws might be compared to the Prohibition laws. Persons actively and openly rejected these laws and this was considered socially acceptible. On the other hand, it was not considered

socially acceptable to openly reject the abortion laws. The public's toleration of this practice is brought out by the huge number of offenses with relatively few convictions. Law enforcement personnel are frequently plagued with ambivalence and indifference on the part of the witnesses and the victim when trying to prosecute an abortionist. Public acceptance for the need of the abortionist's services makes law enforcement exceedingly difficult.

Although most state statutes require abortions of all types to be registered as "fetal deaths" this is not often done. A woman's desire to avoid public record of an event which may be associated with any aspect of her sexual life, along with the sympathetic attitude of the physician concerned, makes accurate reporting almost impossible. Older studies of maternal mortality in New York City report that twenty-five to thirty per cent of deaths due to abortion had a false diagnosis on the death certificate prior to autopsy. Many self-induced abortions by women in their own homes are reported as "endometritis", or "uterine bleeding" when they are hospitalized for septic sequelae.

Attitudes of religious groups vary, and the three major sects in the United States do not agree. Catholics prohibit direct or therapeutic abortion under any or all conditions, and they hold the patient and the doctors morally bound not to permit them to take place. Penalty for this is excommunication. However, surgical procedures which may have the effect of "indirectly causing abortion" are permitted for grave medical reasons.

Protestants are generally considered to be more tolerant because

of their favorable attitude toward birth control and also toward medically authorized therapeutic abortions. The groups which advocate legalization of abortion are largely non-Catholic. Most Protestant groups make no official pronouncement upon any type of abortion, but generally accept the existing abortion laws as being adequate. This is reinforced by the fact that therapeutic abortions are permitted without comment in Protestant hospitals.

Jewish opinion is split. Orthodox groups believe that prior to the fortieth day there is no life in the ovum; it has not quickened and is a mere vegetative substance. Therefore, it is not a criminal offense to induce abortion prior to the fortieth day of pregnancy. It is, however, morally wrong, especially if done by the male since according to Jewish law the duty of reproduction is most incumbent upon the male. Subsequent to the fortieth day, induced abortion is considered to be criminal. With the onset of labor, the legal status of the fetus changes and with emergence of the head, it is considered to be an independent life. Killing of it constitutes murder. All Jews permit the killing of the fetus when it is a question of saving the mother's life. "Reformed" Jewish groups have the same general attitude as the Protestants.

Most ethical writers agree that we must have regard for both the fertilized ovum and the mother, and that the mother does not have the right to dispose of the ovum as she sees fit. Conversly, most writers also agree that the mother's life or social usefulness should not be sacrificed or seriously limited by the continued existence of a mass

of cells whose nature is so precarious and whose potential ultimate value is yet unknown. If the mother lives, she may conceive again under more healthful conditions. Thus, if a question of survival between mother and fetus comes, the mother must be given the first consideration.

A few writers, mostly gynecologists, published books and monographs during the 1930's advocating a more liberal view of abortion. One of them, Rongy, advocated modification of existing abortion laws to include: illegitimate pregnancies, pregnancy of a mental defective, pregnancy as a result of incest, desertion of the father, pregnant widows, and married women who already have several children.

The attitude of the general public toward legally performed therapeutic abortion is a complacent one. Its attitude toward criminal abortion is almost always one of condemnation, at least when one's opinion is expressed publicly. It has been shown that this attitude can readily change to a positive one when the person is confronted with a personally or socially unacceptable pregnancy. (14)

THE ABORTIONIST

Persons practicing criminal abortion come from a variety of social, cultural, and racial backgrounds. How each enters the field depends on his or her educational and socio-economic background. There are five general types: the physician abortionist, the abortionist who has some medical training (registered nurse, licensed practical nurse, chiropractors, physiotherapists, dentists, and midwives), the

quack doctor, the amatuer type (salesman, prostitutes, barbers, unskilled laborers, etc.), and the self-abortionist.

The first to be considered is the physician abortionist. In a study of one hundred eleven abortionists in New York County Court from 1925 to 1950, thirty-one or 27.9 per cent were licensed physicians. In studying these cases it was found that most had no "real" economic motivation to practice illegal abortion, however, there were numerous cases in which strong psychological motivations such as the desire to obtain a good deal of money with little effort in order to compensate for feelings of insecurity and inadequacy. Statistically the physician abortionist is not among the poorest students in his class, but it has been shown that following graduation and internship these persons have a good deal of trouble making a normal professional adjustment to the private practice of medicine. After a varied period of struggle, they may find the abortion trade offers an excellent means of making a quite lucrative living. This quick and easy tax-free money makes it hard to leave the trade and aids in rationalizing their actions. Many believe they are performing a socially valuable work. Others have said they couldn't resist the "pitiful appeal of the women who came to them."

Most abortionists who contemplate going into the abortion trade first observe their collegue in practice, or they may start a practice by working as a relief man for another abortionist. Salaries up to $500 per week have been reported by these substitutes. He may then progress to a position as an assistant and get a percentage of the cut. From here he may open his own practice if he feels he has

developed a sufficient following and has become known by the druggist, general practioner, and others who refer patients.

The average medical abortionist, however, is usually a general practioner whose practice has not become lucrative enough and who does a few abortions on patients well known to him. The word spreads, and the original patients refer others to him until abortions are the bulk of his madical practice.

Instruments for dilitation and curettage and office equipment required by the abortionist do not differ from those of a gynecologist. He does require a room with cots or couches so his patients can rest following the operation. Office location is very important. First choice is generally a private house not near a police station or church. Smaller apartment buildings without superintendents or elevator operators are second. Large office buildings are occasionally used in which several interconnecting offices are rented and ficticious labels placed on the doors.

Since midwifery is a dying profession, it is no wonder that many of them have turned to the practice of abortion as a means of recouping the lost income. In the study of the one hundred eleven cases previously mentioned, twenty-five or 22.5 per cent of the defendents had been midwives. The method used by midwives and other partially medical persons is seldom dilitation and curettage. This is probably due to their lack of instruments, training, and other equipment. The most common method here is to insert a sterilized rubber catheter into the uterus and have the patient walk around until

mechanical friction disturbs the pregnancy and mild hemorrhage commences. Another method is to pack the uterus with sterile gauze using an instrument called a unterine packer. This stimulates uterine contractions with subsequent expulsion of the contents of the uterus. (15)

"Quack" doctors, that is unlicensed or more or less medically untrained individuals openly posing as physicians, represented about 4.5 per cent of the one hundred eleven cases studied. Frequently, there was insufficient evidence to prove that they performed abortions (felony) so they were charged with unlicensed practice of medicine (a misdemeanor in most states).

The amatuer abortionist enters the field from a variety of previous occupations totally unconnected with medicine. Some have served as contact men, business agents, assistants and receptionists associated with physician-abortionists and eventually started their own practices. For obvious reasons, their careers are generally shorter, but almost all make more money than in their previous occupations. In the previously mentioned study, 5.4 per cent have never actually committed abortions themselves, but they were working as part of a so-called abortion mill and received a percentage of the net proceeds of the entire operation, depending on the importance of their services. (16)

The self-abortionists are women who succeed in aborting themselves with a technique involving a combination of hot baths, exercises, drugs, douches, and the use of a domestic or homemade instrument. Although it is accepted that this practice is relatively

common, there is no record of a conviction for this offense in the literature consulted. Statistics on the incidence of self-induced abortions vary from six to thirty per cent of all abortions in several reported studies. It is difficult to say how one is introduced to the practice of self-abortion, but women have apparently passed the knowledge of various techniques among themselves down through the centuries.

As might be expected, self-induced abortion is not an easy task, and women often seek the help of a friend or neighbor. Again the insertion of a urinary catheter which can readily be obtained in any drug store is the most frequently used method. This most generally directly disturbs the pregnancy and the products of conception are expelled accompanied by varying degrees of hemorrhage. If the hemorrhage is great enough, she then seeks medical aid. Ignorance of sterile technique almost insures infection in all cases, this being the most important cause of death in abortion, no matter how induced. An alternate method is to use some sort of thin rod with a blunt end such as an umbrella rib with its ball end or the end of a knitting needle. Coat hangers are also commonly used. Not only are the risks of infection greater here, but there is also danger of perforation of the uterine walls since it is relatively soft in the pregnant state. Despite the use of antibiotics, some women still end up as a statistic in a medical examiners report, and oddly enough some were not even pregnant in the first place.

Another method which dates back several centuries is the use of

"slippery elm" which is a dehydrated form of tree bark. A stick is placed in the cervical canal, and the cervical mucus causes it to swell and dilate the cervix. Since the stick is difficult to insert and keep in place, this method fails more often than it is successful. Lamineria tents (dried seaweed compressed in pencil-like shapes) have been used in a similar manner in Germany and other European countries although they have never gained much popularity in this country. The tent, however, may be lost in the uterus or slip out of the cervix. Tampons or gauze packs have been used to keep them in place, but this makes the presence of infection a certainty since the drainage from the uterus is obstructed. (17)

One very original method reported by Alan Guttmacher tells of a farm woman who had aborted herself twenty-eight times by using a goose quill, the point of which had been dipped in kerosene. She would squat over a mirror on the floor and since her uterus was slightly prolapsed, could easily introduce the quill into the cervix.

Dr. Willford Hulse, formerly chief psychiatrist at the Children's Center, New York City, tells of an "abortion machine" based on the rod technique designed by one of his patients for use on his own wife. It was constructed of surgical steel with a stop device to prevent perforation and was activated by a crank and had numerous inter-connecting gears.

The perforation of the uterus is often accompanied by injury to adjacent organs with subsequent formation of rectal-vaginal or vesico-vaginal fistulae, especially when rigid instruments such as

screw-drivers or coat hangers are used. Catheters have also been mistakenly introduced into the urethra and lost.

Douching and the injection of soap and other mildly caustic solutions has been tried. These solutions can and do enter the venous circulation directly and cause varying degrees of hemolytic or chemical injury. One case reported the use of powdered mustard suspended in olive oil. At autopsy, microscopic particles of mustard seed in oil were found as emboli in the lungs and venous sinuses of the uterus. (19) The injection of air into the uterus either as a primary abortifacient or unintentionally can result in air embolism of sufficient quantity to cause circulatory embarrassment and may cause rapid death. (20)

Less direct methods than instrumentation or injection of noxious materials have also been employed. Hot sitz baths alone or in combination with other methods have reportedly been effective. In more primitive societies, and even in our own society, direct blows on the abdomen such as having someone jump on the woman have been used. Usually less strenuous trauma is used, such as riding, jumping, carrying suitcases, gymnastics, or other violent exertions. Electrical stimulation of the uterus to produce contractions has been tried and resulted many times in electrocution.

Even a less direct method is the use of poisons which attack the products of conception. Numerous different brews and concotions have been used down through the centuries. Following World War II in Germany, it was reported the powder from a particular type of eight

millimeter shells when dissolved in a glass of water and drunk would produce a prompt and painful abortion. It was believed that the woman taking this potient would become violently ill for twenty-four hours but would recover immediately after aborting. No other powder except that from this specific type of shell would be effective.

Ergot preparations, which are derived from a parasitic fungus occuring on rye, are very useful in the control of post-partum hemorrhage in obstetrics. They are also sold illegally for painless abortions, but quantities sufficient to produce abortions are extremely dangerous. When used in late pregnancy, rupture of the uterus may result with hemorrhage and shock.

Quinine also has a false reputation as an ecbolic agent. Like castor oil and other purgative drugs, it has little effect on pregnancy unless taken in quantities which endanger the life of the woman. Despite this fact, many such unreliable agents as oils and extracts of absinthium, arnica, nutmeg, rosemary, and savin have been used for centuries. Apiole, a derivative of parsley herb, is still widely used as an abortive agent and to precipitate menstruation. Aloes, also a purgative, along with other herbs such as cloves, thyme, saffrin, hellebroe, hydastes, sassafrass, and rue still enjoy some popularity. Tansy tea was a favorite in rural America. These agents, like quinine, are not effective unless given in dangerously high and evem toxic doses.

Inorganic drugs such as metal salts have been used frequently with favorable results. Due to its toxic effect on the placenta,

lead has gained a dangerous reputation as an abortive agent. Diachylon pills, which contain lead oleate, were used in England in the 1930's and caused a series of deaths in pregnant women. Mrs. Seagrave (alias Wardell) was sentenced to prison as an abortionist for selling "Mrs. Seagrave's Pills" which had diachylon as a primary ingredient. (21)

Phosphorous also causes many maternal deaths due to its hepatic toxicity. In past years phosphorous was used in match heads, and women frequently ingested match heads to induce abortion. It is still present in some rat poisons, but has lost its popularity. It produces acute yellow atrophy or liver necrosis which is usually fatal. (22)

Pituitary extracts were used in the past, but they are now avoided by professionals except for their legitimate uses and are generally not used by amateurs because they are injectable drugs. (23)

Antimetabolites have also been used as abortifacient agents. Among these, aminopterin, a folic acid antagonist, gained some popularity in the early 1950's. The agent is generally effective, but danger lies in its uncontrolled use since it has a marked depressive effect on the bone marrow and has been used in some blood dyscrasias. Also, if the embryo is not killed, there is a high incidence of developmental anomalies. (24)

Thus, it can be seen that these abortifacients are either ineffective, and/or very dangerous to use. Nature protects the fetus very well, and the price and effort required to blast it out of the uterus can be prohibitive. The general pattern begins with self-medication with one or more of the afore mentioned agents to be followed

by a more direct approach and/or a visit to a professional abortionist.

THE CLIENTELE

The abortionist's clientele consists of women from all social classes and economic levels. An illiterate Polish woman in New York's lower east side charged a fee of five dollars using the catheter technique while a trio of Park Avenue specialists charged a fee of $2,000 with adjustments up or down on a "what the traffic will bear" basis.

Of the women procurring abortions, the greater majority are married. Of the one hundred eleven cases previously cited, 67.6 per cent were married although all were not actually living with their husbands, and the paternity of the aborted pregnancy was doubtful in some cases. (25) Tietze, in 1948, reviewed the records of two abortionist specialists and found that of the 363 patients studied, 102 were single, 108 (49.6 per cent) were married, and 81 had been previously married. Of the latter group, half were widows and half divorcees. These women all came from an upper middle income group. (26) On the other hand, Simons found that in his charity patients about 75 per cent were married. (27) The difference can probably be attributed to the different economic and social pressures on each group.

The study by Tietze reveals the most adequate record as to age and marital status. The following table summarizes these findings:

TABLE I

WOMEN UNDERGOING ILLEGAL ABORTION BY MARITAL STATUS, AGE, NUMBER OF CHILDREN EVER BORN (28)

	Single	Married	Previously Married	Total
Age (years)				
10-14	3	--	--	3
15-19	22	10	2	34
20-24	29	44	15	88
25-29	21	42	28	91
30-34	18	42	20	80
35-39	6	19	10	35
40 and over	3	23	6	32
Children born				
0	100	45	25	170
1	2	39	31	72
2	---	52	16	68
3	---	27	8	35
4 and over	---	17	1	18
Previous abortions				
0	87	147	64	298
1	10	18	15	43
2	2	10	2	14
3 and over	3	5	--	8
TOTAL	102	180	81	363

It must be remembered that this group is not a random sampling of the population, but represents the upper middle income group. The average age was 28.6 years with the single women the youngest as might be expected. Considering the group as a whole, one hundred seventy or almost half of the 363 had never borne a child even though seventy were married or had previously been married. Of the 111 cases in the New York City study, seventy-seven or 69.4 per cent gave their occupation as "housewife" thus indicating the preponderance of married women. (29) Tietze's study also revealed that the abortion rate tends to increase with parity.

ABORTION MILLS AND RINGS

Many abortionists depart from the larger structure known as an abortion "mill" or "ring". A mill may be an abortionist or several abortionists working in a fairly permanent location and aborting several women daily. A ring may be viewed as a number of abortionists or mills working intermittently at several changing locations and a aborting even more women daily. These rings are quite well organized and all members operate with full knowledge of each other's activities.

An efficient abortionist will have both business and medical assistants. An organization large enough to fall into the mill category will have a business staff consisting of at least a secretary-receptionist and a business manager. The secretary generally is a young woman who not only has clerical duties, but also meets all prospective patients and sets the fee for the operation. She is well paid, making at least $100 a week or a percentage of the net profits. The success of the operation often hinges upon her ability to size up the prospective patients as to their ability to pay. Her ability to judge people also protects the operation from government investigators. Thus, it can be seen that her intuition stands between the abortionist and a jail sentence. Often they have worked their way up to this position after serving as a practical assistant to the abortionist.

The business agent handles contacts with landlords, salaries, bills, bribe money, and splitting of fees. He also serves as contact man between the abortionist and the referral sources. Larger mills

employ runners to act as intermediates between business manager and sources of referral, thus increasing the margin of safety for the practice. Since this position requires a good deal of loyalty, most abortionists hire a relative or very good friend as their business manager.

The medical assistants are usually licensed practical nurses and only rarely a registered nurse. Some abortionists train their own assistants which are generally girls with a background of domestic service. These assistants usually make salaries of at least 25 per cent more than those paid by hospitals for similar work. The dangers of employing this inadequately trained help are obvious.

The two most common referral sources to the physician abortionist are the druggist and the general practioner. Women often seek out the druggist to provide her with some pharmaceutical agent to end an unwanted pregnancy, and he will commonly refer them to an abortionist. His fee varies from 25 to 50 per cent of the total charge. It is not known if the druggist or the doctor refers the greatest number of patients, but suffice it to say that existing evidence reveals that both professions are very active. A third referral source lies in women who were formerly aborted at a particular abortion mill, and they will refer relatives, friends, and acquaintances that require similar services. These are very gratifying referrals since there is no splitting of the fee in these cases. Secondary sources of referral lie in taxi drivers and bellboys since these occupations often deal with information about a product or service which is contrary to local

law or mores.

The abortionist is not tied to specific office hours as private physicians are, but most operate between 10 A. M. and 4 P. M. The tempo picks up on Friday and Saturday due to the frequency of paydays and the chance the patient has to remain in bed over the weekend. The number of abortions performed in the day depends on the doctor's technique, the efficiency of his assistants, and the number of recovery cots he can provide. Many can perform the entire operation in three to five minutes not including the time needed to prepare the patient. Often these preliminary aseptic techniques are omitted in order to speed up the operation and increase the profits. Anesthetics are seldom used partly because they slow the operation down and partly to avoid the complications of general anesthesia. Anesthetics such as chloroform may leave traces at an autopsy and for this reason are avoided. Intravenous sodium pentothal or other injectable agents are most commonly untilized, when an anesthetic is used at all. These insure early ambulation which is a necessity for an efficient operation. It is agreed that one of the greatest dangers of abortion procedures results from the lack of proper care following the operation. Many mills lack the facilities for the patients to rest for more than an hour or so. Also, the risk of detection necessitates the exodus of t e patient at the earliest possible moment. Even though many abortionists advise bedrest at home, this advice is frequently ignored partly due to the necessity of the aborted woman to keep the abortion a secret and partly due to the necessity of resuming employment quickly.

Ignorance and over-confidence are also frequently involved. In case of unpleasant sequelae, the patient is advised by the abortionist to present herself at the outpatient clinic of a general hospital and state that she was pregnant and had been involved in some traumatic incidence. A spontaneous abortion has many symptoms in common with a septic abortion and only the alert practioner can detect criminal involvement if the patient presents a false history and there is no evidence of surgical damage.

Needless to say, midwives, with their inept technique and inadequate after care are responsible for a greater proportion of septic complications than the physician abortionist. After care largely consists of prescribing doses of aspirin or quinine, alcohol sponges, baths, and keeping the patient in bed.

For obvious reasons, the members of the mill take energetic measures to avoid being caught. The abortionist, however, is not always convicted as is evidenced by the fact that some physician-abortionists have had two, four, eight, and in one case twelve arrests on charges of abortion. In fact, one study recently revealed that in 37.8 per cent of a group of arrests, the charges were dropped for lack of substantial evidence. To avoid the accumulation of such evidence, many abortionists vary their mode of operation. For one thing, he may not subscribe to a commercial linen or towel service even though his need for such items is greater than that of the practioner. Such material may prove to be suspicious and if a complaint is brought against the abortionist, they could be used as

inferential evidence. To avoid identification, some abortionists have no conversation with the patients, but operate behind a surgical screen after the preliminary negotiations with the receptionist and preparation by the nurse. Some mills are provided with burglar alarm type warning systems which are activated by unwanted intruders. A secret escape door to an adjoining building could allow the aborted female and soiled instruments to be spirited away even as the police are entering with a search warrant.

Another source of danger and overhead expense to mill participants may be found in the heavy demands for protection money from members of the police departments and district attorneys' offices. It has been reported by some defendents in abortion cases that the average operation of a busy mill pays a minimum of $5,000 in protection money to the police each year. A few abortionists who depend on high fees rather than quantative patients avoid these payments by associating themselves with some physicians with a spotless legal record who certify that each abortion was necessary on a therapeutic basis and thus is quite "legal". As might be expected the mill operator is also the target of extortionate demands from other unethical professional men.

Court cases have also demonstrated the interaction of mill personnel with enacted types of institutions, associations, and interest groups. Many abortionists, in common with other professional persons who depend in part on social contacts for sources of business, are great joiners of fraternal groups, secret societies, and business and professional organizations such as Lions, Kiwanis Clubs, etc. In these

groups they speak of themselves as "office gynecologists", a term which is rapidly being used as a polite medical synonym for the abortionist. These contacts with these institutions not only provide fertile sources of referrals, but also serve as prestige factors should the abortionist become a defendent in a criminal action. (30)

Many criminal activities have been found to be associated with induced abortions. One of these is the practice of filing false death certificates. Testimony has revealed that probably the greatest single source of false death certificates has always been small, private sanitariums and nursing homes which are supported by abortionists. They have every facility for covering up deaths as a result of illegal operations

Another crime frequently associated with abortionists is that of purveying narcotic drugs to addicts. Still another is the sale of drugs which are supposed to produce abortion, by unethical drug houses which operate through the mails. They constantly change the name of their firm and capitalize on the fears and guilt of thousands of women with an unwanted pregnancy, real or imagined. They place cleverly worded advertisements in third-rate picture magazines of the "confession" type. They avoid Federal prosecution but attract the medically ignorant and gullible. Many women whose menses are delayed for psychosomatic of functional reasons take these medications with apparent "success" and pass the word along to others that the abortifacient drugs can be obtained by mail.

Another sideline is the channelling of illegitimate babies

through the so-called gray or black market adoption sources. Abortion clients often come to the abortionist with pregnancies too far advanced to be safely terminated. The abortionist will offer the female confinement expenses and promise to find a "good home for the baby." An added bonus often is inducement enough to make this sound like the answer to the problem and if the abortionist operates a nursing home as front for his activities, the pregnant girl soon finds herself employed as an unpaid kitchen drudge until it is time for her delivery. The newborn is then "sold" to an "agency" at about $1,500. The adoptive parents generally pay about $3,000 for the infant. (31)

ABORTION LAWS AND THE ATTENDING PHYSICIAN

Abortion cases are frequent sources of potential trouble in all hospitals. Hospitals frequently admit cases of incomplete abortion whether spontaneous or induced. Abortionists will often commence abortions and will instruct the patient to go to the hospital when serious symptoms appear. The attending physician is thus placed in a precarious position. If he examines the patient and she should die, an element of suspicion may arise. Thus, he usually will hospitalize the patient after as brief an examination as possible and examine her more completely with the aid of consultants. The law assumes that an abortion is for therapeutic reasons unless there is sufficient evidence to the contrary. A very necessary element in abortion is intent. A careful history can often detect if this element is present.

State laws specifically require consultation in New Mexico, Georgia, and Maryland, in order to protect the patient and the physician.

In the absence of consultation, more rigid proof of medical necessity for abortion is needed. The failure to obtain a consultation will not establish guilty intent, but additional evidence is required to prove the abortion was not medically indicated. Abortion is punishable as a separate crime in a number of states whether the female involved was pregnant or not. Other states require the prerequisite of proof of pregnancy. In still other states pregnancy is not the material element of the crime of attempting to procure an abortion. The state is generally responsible for proving an abortion was not medically justified. Proof of pregnancy with subsequent operation in and of themselves are not sufficient to show criminal act. The physician needs to demonstrate the potential peril to the life of the mother whether it be imminent or not. There must be proof that all measures short of abortion were taken to alleviate this peril. Antibiotics and other medical management of cardiac disease have made fewer therapeutic abortions necessary. Still there are conflicting views as to criteria for doing therapeutic abortions and in the end, after consultation, the physician must act according to his best judgment.

If a woman admits that a criminal abortion has been performed prior to her admission to a hospital, the attending physician should, if possible, obtain information as to instruments used, type, and by whom since it is a crime in the United States to use instruments on a female with the intent of aborting unless it is a medical necessity and then only by qualified physicians. Also, he should note any drugs or "any substance" prescribed or administered, by whom they were given,

and where they were obtained. Persons prescribing or administering abortifacients are criminally liable for their acts even though they are not present when the drug is taken and even though no abortion follows. Even mailing a drug to a pregnant woman with the intent of procurring abortion is considered criminal. Persons who assist in abortions are equally as guilty as the persons manipulating the instruments or administering any drug or substance. Physicians, druggists and other referring sources can also be convicted as principals in the crime.

Usually, but not always, a female giving consent to her own abortion under criminal conditions is not regarded as an accomplice to the crime. In the District of Columbia she is not criminally liable, while in Pennsylvania she is regarded as a victim, not as a criminal. She is not an accomplice in New York state, but can be charged with the separate offense of "killing a child in attempted miscarriage". The crime is against the life of a child in New Jersey. A woman is considered an accomplice in Alabama unless she sincerely believed the abortion was for therapeutic reasons. She may also be charged as a co-conspirator to commit the crime of abortion upon herself. In states where she is regarded as a victim, she may testify for the prosecution.

Lawful communication between patient and physician are considered to be privileged information. Any material communicated to a physician by the patient for the purpose of aiding successful diagnosis or therapy falls under this heading and unless it is a dying statement by a patient,

any information divulged by the physician is considered heresay. Facts which may aid the police in apprehending the abortionist are not considered privileged and the physician is liable to prosecution unless he divulges these facts. Therapy subsequent to an abortion is considered privileged, however.

A physician or other person causing a death as a result of an illegal abortion procedure, risks a penalty ranging from second degree manslaughter to first degree murder. A legal abortion may result in a charge of manslaughter if it can be proven that the physician had been wantonly, willfully, and grossly negligent during the patient's course of treatment and/or surgery. It is also manslaughter when a death follows an act forbidden by law. Any person who, believing a woman to be pregnant, uses or induces the woman to use instruments on herself for the purpose of procurring illegal abortion is guilty of manslaughter if her death follows as a result of this instrumentation, even if the woman is not pregnant. A dying declaration is admissable in evidence in homicide cases in common law and is made admissable in civil cases by statute in Oregon, North Carolina, and Arkansas, while in New York, Ohio, Pennsylvania, Kansas, Mississippi, and Massechusetts it is made admissable by judicial decision only. The victim must make a declaration under solemn belief that her death is impending and will occur as a result of that injury.

In proceedings to revoke a physician's license, admissability of the dying declaration is dependent on state laws. In California it is not held admissable while in Nebraska it is and is not restricted to

homicide cases.

In cases involving recovery of civil damages, recovery is generally disallowed if the woman had consented to the illegal surgery. In Minnesota, Oklahoma, Idaho, and Washington a woman who consents to an illegal abortion is considered "equally involved" and thus, may not recover damages. Some states allow recovery where death results from an illegal abortion, but the woman is generally considered to have been involved herself and the administrator of her estate may not recover damages. However, if it can be proved that the physician failed to administer necessary post-operative treatment, even though the operation was illegal, damages may be recovered.

A physician may have his license revoked for participating as a principal in an illegal abortion. He may be found innocent of the crime of abortion and still lose his license for unprofessional conduct. Unless there is some specific act, the mere willingness to procure an illegal abortion is insufficient grounds for revoking the physician's license. The woman in question may or may not be pregnant, and the revokation depends upon the state statute involved, that is, some states require the woman to be pregnant before the abortion is considered criminal.

Letters in the mail which contain information as to where abortions may be obtained and by whom they could be procurred are sufficient evidence to revoke a physician's license unless the abortion is considered to be for true therapeutic reasons. (32)

MEDICAL ATTITUDES

Almost every physician at some time in his practice is confronted by someone desiring the elimination of an unwanted pregnancy. This is especially true of the general practioner. The pressure to perform these abortions with little or no purely medical indication is a fairly recent phenomenon. In the past midwives performed most of the abortions as sidelines, but with their disappearance from the scene, the pressure to perform abortions has been transferred to the physician. Although the pressure by the public for therapeutic abortions has increased, the medical indications have decreased, both because of modern therapy and because of a gradual change in medical philosophy.

Individual physicians and their societies in general avoid public statements as to the adequacy or desirability of present abortion laws, but inquiry indicates that opinions differ. The medical profession particularly in societies, including the American Medical Association, appear to regard the whole abortion problem as a social rather than medical problem. Bernard Hirsh, an attorney for the AMA, has stated:

> "The association recommends that each doctor protect himself from the charges of illegal abortion by following requirements set up by some states and most hospitals...in states where it is illegal, it is unethical. In states where it is legal, the doctor must be guided by his own conscience. (33)

Dr. F. J. Taussig stated that he knew of "no other instance in history in which there has been such frank and universal disregard for a criminal law." (34)

Dr. Sidney Bolter, a Detroit psychiatrist, cited a recent California study which revealed that 80 per cent of therapeutic

abortions were accomplished for reasons other than the physical health of the mother. As medical indications for abortion shrink, patients and physicians are calling upon the psychiatrist for recommendations to interrupt pregnancy. (35) Many have said that suicide or the possibility thereof constitutes the need to perform a therapeutic abortion, but most frequently an expert and realistic appraisal of the situation leads to the conclusion that the abortion is contraindicated both legally and psychiatrically.

Some physicians feel that "humanitarian" and "socio-economic" indications are properly not medical indications and that eliminating pregnancies on these bases will not build a better society. Others feel that these abortions are as justified as those performed for purely medical reasons.

Dr. Alan F. Guttmacher, formerly director of the Department of Obstetrics and Gynecology, Mt. Sinnai Hospital, New York, takes a middle-of-the-road position:

> "Of course, to have no induced abortions at all, whether legal or illegal, would be our goal, but that is unobtainable, obviously. Therefore, I should like to see a more permissive law, so that those who do carry out what we honestly consider to be needed therapeutic abortions would not be doing so with haunting feeling that our acts are half legal or pseudo-legal. I personally am not satisfied with the current laws because obstetrics and gynecology cannot separate honestly within their framework." (36)

Thus it can be seen that if physicians are to remain within the limitations of the law, they will have to insist more and more vocally that present laws be modified to permit abortion. Since most of the pressure arises from the public and social scientists, it behooves

them to spearhead the needed legislative changes. However, it seems unlikely that any changes will be made in the near future. (37)

DIAGNOSIS AND MANAGEMENT

Now, to turn to the medical aspects and management of criminal abortion. Criteria for determining if an abortion is septic or not have been listed as follows: 1) An intrapartum temperature of 38 degrees C. (100.4 degrees F.) or higher and/or 2) A postpartum temperature elevation of 38 degrees C. or higher, in any two twenty-four hour periods, excluding the first twenty-four hours, and 3) all other causes of fever must be excluded. (38) These are strict criteria, however, and many people believe that any abortion associated with a fever of 99 degrees plus at any time is probably induced.

In a study by Knapp et al., it was indicated that the introduction of the organism alone is not the sole contributing factor to sepsis. They found that the presence of bacteria in the non-septic patient might lead one to postulate that sepsis is due to an autogenous infection, which may arise from either host susceptability, a sufficient amount of innoculum, or tissue injury, and these conditions are exaggerated in criminally induced abortions. In types of infections which spread beyond the confines of the uterus, streptococcal strains are most common followed closely by staphlococcal strains. Gram negative rods also appear commonly, but it cannot be proven whether or not they actually contribute to the more serious infections. (39)

The diagnosis of septic abortion may be made on the basis of a history of attempted interference with pregnancy when followed by

fever. Confirmation may be made by a speculum and pelvic examination. The signs of trauma are frequently present on the vaginal wall or cervix. A foul or septic discharge from the cervix is important. Uterine tenderness is a cardinal sign. The tenderness may be confined to the uterus or extend into the adenexa. Pelvic masses or abscesses are usually absent unless the infection is long standing. Frequently necrotic tissue is found protruding from the cervical os, but intra-uterine infection may be present with a closed cervix. However, in cases which are not clear cut, infection of the lungs or urinary tract must be ruled out as possible etiology of the fever. (40)

Cervical cultures should be obtained before curettage and prior to the administration of any antibiotics. Smears made immediately will reveal the predominent organism whether it is a gram positive cocci or a gram negative rod or a gram positive encapsulated rod, suggesting a gas bacillus infection, or a member of the spore-bearing group of organisms. Antibiotic therapy can then be instituted while waiting for the cultures.

Abdominal x-ray on admission may be of some help, especially if there is a history of some interference, since there may be the possibility of a foreign body or free air in the peritoneal cavity. A white cell count is not a very useful guide as to severity of infection as it is frequently elevated as much in the mildly septic patient as it is in the severely septic one.

The physician must be alert to the development of shock secondary to sepsis. The amount and color of the urine should be ascertained

since oliguria and port-wine urine are grave signs. The physician must not overhydrate the patient in the presence of these signs. (41)

Following cultures and smears, antibiotics should be started and given intravenously if the septic condition is severe. Since most infections are mixed, the antibiotic should cover a broad spectrum. Penicillin, 600,000 units stat on admission followed by 300,000 units intramuscularly every four hours combined with streptomycin, 0.5 Gms. twice daily controls most infections. This treatment is continued for a full five days or for forty-eight hours after the temperature has become normal. (42) Antibiotics are reserved for the septic cases only and should not be given prophylactically to the non-septic patient since they respond well to curettage alone.

If the patient is septic and the infection is limited to the uterus alone, the best therapy calls for a short period of antibiotic therapy followed by emergency curettage. Procrastination may lead to extension of the infection. In cases where the infection has spread to the parametrium and adnexa or a peritonitis has developed, the general practice is to first remove placental tissue from the cervix and lower uterine segment. An oxytoxic and antibiotics are then administered until the parametritis is under control and curettage is then performed if necessary. (43)

In cases in which gram positive cocci are the predominant infecting organism and in which the infection has spread beyond the confines of the uterus, vigorous medical management is of utmost importance. Antibiotics are given as long as physical findings and

the patient's condition require it. Transfusions are given to combat the toxic effects rather than to replace blood loss. In acute phases of the infection, fluids are restricted by mouth and electrolytes are replaced by intravenous therapy. Paralytic ileus is common finding with generalized peritonitis, and a Miller-Abbott tube is passed into the small bowel for decompression. The head of the bed is elevated, and the patient is placed in a Semi-Fowler's position, which tends to localize the infection to the lower pelvis. (44)

However, regardless of the extent of the infection, when coli-aerongenes or welchii bacilli are smeared in the more septic patient, the infected products of conception should be removed immediately. If the uterus is soft and boggy it is considered grossly infected and in this situation a hysterectomy may be a life-saving procedure to prevent further dissemination of the toxins. The procedure should be accomplished prior to the onset of acute renal failure, since this makes surgery formidable. As previously mentioned, highly septic patients in criminally induced abortions should be observed for hypotension and oliguria. (45)

The following steps are outlined for the management of patients with septic abortion and septic shock:

1. Immediate, minute-to minute, stabilization of blood pressure is maintained by intravenous infusion containing Metaraminol (Aramine) or neo-synephrine. Later, this may be administered intramuscularly when the patient is normotensive.

2. Hydrocortisone succinate given intravenously will permanently stabilize the blood pressure, exert a substantial anti-shock effect, and form a blockage between cells and the toxin from the placenta. The dosage is 100 mgm three times a day on the first

day and gradual diminishing of the dosage and frequency as the progress of the case directs. One should be alert to the development of gastric ulcers, especially if gastric suction is being used.

3. Empty the uterus as soon as practicable, by the safest method.

4. Intensive specific antibiotic therapy.

5. Supportive therapy such as fluid and electrolytes with care not to overload the circulatory system. The intravenous fluids should not exceed the output (plus insensible loss) in the face of oliguria. (46)

Madsen and Tieche feel that hydrocortisone appears to be the most important agent in the treatment of bacterial shock, based on the rationale that steroids alleviate the relative degree of adrenocortical insufficiency, block the intense sympathomimetic effect of endotoxins, restore peripheral-vascular tone, and decrease clinical toxicity, thus permitting the patient to survive long enough to benefit from the antibiotics. Massive doses should be given for best results. (47)

Janovski, Weiner, and Ober point out, however, that the treatment of septic shock with antibiotics and steroids carries the hazards of mycotic infections which are difficult to control. (48)

Most patients with gram negative infections respond to curettage and antibiotics. If these organisms are abundant on cervical smear and the patient is hypotensive with a history of sufficient duration to suggest extensive bacterial invasion, one is justified in doing a primary hysterectomy to eradicate the focus of infection and endotoxin production. This procedure early in the course (within the first twelve hours of the onset of hypotension)

of an infection of this type may be life-saving in an otherwise fatal situation. Douglas' test for endotoxin may be useful in differentiating endotoxin produced hypotension from chemical or gas gangrene induced collapse.

In patients who have advanced pregnancy (twelve to twenty-four weeks) and who present with septic abortion, an oxytoxic intravenous drip is instituted in addition to the previously mentioned treatment. An oxytoxin is given, as with all abortions, immediately following uterine evacuation. Ergonovine is also started after evacuation and continued for several days. Antibiotics are continued for seven to ten days. Hysterectomy is generally not necessary in these cases. (49)

Treatment for Clostridia welchii infection is based on a clinical diagnosis since good results depend on early therapy. Significant signs are port-wine urine, oliguria, and hemoglobinemia. Fever, leukocytosis, foul discharge, and tachycardia out of proportion to the fever are other clues. Conclusive proof lies in revealing the classical gram positive rods and subsequent positive culture from cervical smea .

Treatment calls for a regimen of fluid and electrolyte replacement, intravenous and intramuscular penicillin up to 20,000,000 units per day, intravenous and intramuscular chloramphenicol up to 4 Gms. per day, gas gangrene antitoxin up to 100,000 units, hydrocortisone to 2,000 mgm per day and <u>early</u> total hysterectomy and salpingo-oophorectomy. Peritoneal and extracorporal dialysis can be employed where needed in treating the renal insufficiency. Curettage is generally not

considered to be an adequate procedure to remove the focus of infection since small bits of necrotic tissue may lie between the myometrial fibers and the bacillus may eminate its exotoxin from these very small foci. Also, antibiotics may not reach the foci due to poor profusion in the necrotic tissues where these organisms grow best. Since characteristic gas gangrene will show progressive local tissue necrosis several reports have indicated that uterine perforation results from the disease itself. (50)

Only a small percentage of abortions induced by the intra-uterine installation of soap solution result in severe illness. In some countries this is a recognized means of inducing therapeutic abortions. Severe complications are generally unusual before the twelfth week of gestation. Prior to this time the amnion does not fill the uterine cavity, and the placental sinusoids are not developed to a sufficient degree to allow the soap solution to enter the systemic circulation. The ill effects are probably due to the amount of soap that actually enters the circulation. The soap solution probably produces its toxicity by local necrosis with subsequent release of nitrogenous waste products into the blood stream. Lesions found at autopsy include: adrenal-cortical necrosis, renal-cortical necrosis, renal-tubular necrosis, fatty degeneration of the liver, diffuse gastro-intestinal hemorrhage, and chemical and/or bacterial peritonitis.

It is important to distinguish soap induced from mechanically induced abortions. There is usually a lower abdominal tenderness in soap induced abortions. Icterus, hepatic tenderness, and enlargement

may be present. Laboratory evidence of hemolysis, leukopenia, and thrombocytopenia should be sought. Renal shutdown in the absence of shock should also suggest this entity. The appearance of profound illness coupled with a lack of prompt clinical response to vigorous antibiotic therapy and early curettage may suggest the diagnosis. If there are signs of pelvic peritonitis and a deteriorating clinical picture an early hysterectomy should be done. (51)

Besides septic shock and acute renal failure, the problem of pelvic thrombophlebitis looms as a serious complication. This is generally preceded by a localized pelvic cellulitis. Subsequently, thromboses may appear within the pelvic veins starting in the uterine wall and gradually extending to both the uterine and ovarian veins. From there they may involve the hypogastric and common iliac veins up to the inferior vena cava. These thrombi may or may not be infected. If they are, there is a possibility of embolization with subsequent septicemia. These septic emboli may lodge in the lung, brain, kidney, or even the heart valves with a fatal termination. Diagnosis of this complication is generally made by conjecture rather than by physical manifestations present. The most common symptom present is a shaking chill which occurs when showers of these micro-emboli are sent forth. The fever spikes to maybe 105 degrees to 106 degrees F. Blood cultures at this time are frequently positive. Most gynecologists step up the dosage of antibiotics when this entity is suspected. Anticoagulant therapy is contraindicated.(52) If the patient fails to respond after a week of antibiotic therapy or if she suffers a pulmonary infarct while

under this treatment, one should consider ligating the inferior vena cava and ovarian veins to prevent a fatal outcome. (52)

SUMMARY

It can probably safely be said that the true incidence of criminal abortion has not yet been accurately assessed. Estimates range from one criminal abortion for every live birth to one criminal abortion for every five live births. Most studies agree more closely with the latter figure. Criminal abortion rates are higher in married than among single women, and rates tend to increase with parity. Religious and ethical views on the subject are highly variable.

Abortionists may be classified in five different types: The physician abortionist, the partly-trained medical person, the quack doctor, the amateur type, and the self-abortionist.

Almost 28 per cent of one group of abortionists studied were licensed physicians, mostly general practioners. Self-abortionists make up the second largest group and midwives the third. Numerous methods have been outlined ranging from direct trauma to the products of conception with a blunt instrument to douching with caustic solutions or ingestion of a variety of brews supposedly abortifacient agents. The general pattern usually begins with self-medication with one or more of these agents followed by a more direct approach and/or a visit to a professional abortionist.

Many abortionists operate as a part of a mill or ring which has its own business manager, receptionist, assistants, and runners to act as go-betweens for referral sources and the mills. The abortionists

use a variety of ingenious techniques to protect themselves. Many criminal activities have been associated with criminal abortion such as illegal sale of drugs and selling of babies on the black market.

A physician who suspects a criminal abortion has been performed should always call in another physician as a consultant. State laws regarding this crime are variable and ultimately the physician's judgment is accepted in most courts. Although medical indications for performing therapeutic abortions have decreased, public pressure to perform them has increased. Medical organizations leave the indications up to the individual physician in most cases.

Criteria for making the diagnosis of septic abortion are an intrapartum temperature of 100.4 degrees F. or higher, postpartum temperature of 100.4 degrees F. for any two twenty-four hour periods excluding the first twenty-four hours, excluding all other causes of fever. Aids in the diagnosis besides history include vaginal or cervical trauma, a foul discharge, uterine tenderness and possibly necrotic tissue in the cervical os. Cervical smears and cultures will usually confirm the diagnosis and indicate choice of antibiotics.

Most cases respond to a short course of antibiotics followed by early curettage. Antibiotics are reserved for sepsis only and should not be used prophylactically. If the septic condition is great, oxytoxics and antibiotics are used, and in severe cases hysterectomy is necessary. This is especially true of gram negative and clostridial infections. Septic shock is a grave complication and

should be combated with vasopressor agents for hypotension, hydrocortisone, evacuation of the uterus as soon as possible, specific and massive antibiotic therapy, and fluid and electrolytes as supportive care, with caution not to overload the circulatory system. In cases of Clostridium welchii infactions massive doses of penicillin and chloramphenicol are given along with gas gangrene antitoxin and hydrocortisone, and early hysterectomy is performed to eliminate the focus of infection.

Besides septic shock and acute renal failure, pelvic thrombophlebitis is a serious complication. It can be treated conservatively (anticoagulants are contraindicated) or a radical procedure such as ligation of the inferior vena cava may be necessitated.

CONCLUSION

It is evident that criminal abortion is indeed a major problem. The discrete acceptance of it as a necessity by society makes it difficult to enforce present laws governing abortion. The physician, especially the general practioner, must constantly be alert to protect himself and his profession, both from a medical and a legal standpoint, from the pleas made by women with unwanted pregnancies. Medical treatment is made difficult since patients generally do not seek medical aid until serious complications have set in.

The adequacy of existing abortion laws has not been discussed at any great length in this paper. It is the feeling of this author that if nothing else, the present abortion laws should be clarified and made consistent throughout this country. Because the problem has

medical, social, and legal aspects, the solution cannot evolve from any one of these fields, but must result from a joint effort by individuals representing each one.

BIBLIOGRAPHY

1. Taussig, Fredrick J., Abortion, Spontaneous and Induced, St. Louis, C. V. Mosby Co., 1936, p. 480.

2. Bates, Jerome E., and Zawadzki, Edward S., Criminal Abortion, Springfield, Ill., Charles C. Thomas Co., 1964, p. 3.

3. Gebhard, Paul H. and others, Pregnancy, Birth and Abortion, New York, Harper and Brothers and Paul B. Hoeber, Inc., 1958, pp. 136-137.

4. Bates and Zawadzki, Op Cit., pp. 3-4.

5. Rice-Wray, Edris, The Provoked Abortion - A Major Public Health Problem, Amer. J. Pub. Health, 54:313-321, (Feb.), 1964.

6. Gebhard, et al., Op Cit., p. 213.

7. Ibid, p. 97.

8. Ibid, p. 115.

9. Pearl, Raymond, Fertility and Contraception in New York and Chicago, JAMA, vol. 108, 1937, p. 1394.

10. Tietze, Christopher, Report of a Series of Abortions Induced by Physicians, Human Biology, vol. XXI, Jan, 1949, p. 62.

11. Gebhard, et al., Op Cit., p. 241.

12. Brunner, Endre K. and Newton, L., Abortions in Relation to Viable Births in 10,609 Pregnancies, Amer. J. Obst. and Gynec., vol. XXXVIII: No. 1, 1939, pp. 82-90.

13. Brunner, Endre K., The Outcome of 1556 Conceptions, A Medical Sociologic Study, Human Biology, vol. XIII, No. 2, 1941, p. 175.

14. Bates and Zawadzki, Op Cit., pp. 24-32.

15. Taussig, F. J., Op Cit., pp.322-340.

16. Bates and Zawadzki, Op Cit., pp35-50.

17. Ibid, p. 86.

18. Guttmacher, Alan F., Babies by Choice or Chance, New York, Doubleday and Co., 1959, p. 220.

19. Helpner, Milton, The Problem of Criminal Abortion, Quart. Rev. Surg. Obst. Gynec., 16:234, (Oct-Dec), 1959.

20. Bates and Zawadzki, Op Cit., p. 87.

21. Ibid, pp. 88-89.

22. Taussig, F. J., Op Cit., p. 355.

23. Bates and Zawadzki, Op Cit., p. 90.

24. Caldrone, Mary S. (Ed.), Abortion in the United States: Proceedings of the Conference Held Under the Auspices of the Planned Parenthood Federation of America in April and June of 1955, Hoeber Harper, 1958, p. 64.

25. Ibid, p. 44.

26. Tietze, Op Cit., p. 60.

27. Simons, J. H., Statistical Analysis of One Thousand Abortions, Amer J. Obst. and Gynec., vol. XXXVII: No. 5, p. 848.

28. Tietze, Christophor, Op Cit., Table I, p. 61.

29. Bates and Zawadzki, Op Cit., p. 46.

30. Ibid, pp. 51-74.

31. Ibid, pp. 78-83.

32. Ibid, pp. 100-109.

33. Time Magazine, Abortion: Precept and Practice, vol. LXXX: No. 2, July 13, 1962, p. 52.

34. Taussig, Op Cit., p. 422.

35. Bolter, Sidney, Ethics and Abortion, JAMA, vol. 180: No. 9, June, 1962, p. 29.

36. Caldrone, Mary S., Op Cit., p. 59.

37. Bates and Zawadzki, Op Cit., pp. 112-118.

38. Knapp, Robert C. and others, Septic Abortion, Obst.-Gynec., 15: 344-350, (March) 1960.

39. Ibid, p. 346.

40. Tenney, Benjamin, and others, Septic Abortion, New Eng. J. Med., 257: No. 21: 1022-1025, (Nov., 21) 1957.

41. Knapp et al., Op Cit., p. 348.

42. Parsons, Langdon, and Sommers, Sheldon C., Gynecology: Septic Abortions, Philadelphia, W. B. Saunders Co., 1962. pp. 546-553.

43. Knapp et al., Op Cit., p. 348.

44. Parsons and Sommers, Op Cit., p. 551.

45. Knapp et al., Op Cit., p. 348.

46. Hauger, H. M., and Roden, J. S., Septic Abortion With Adrenal Shock, Obst. and Gynec., 14:184-187, (Aug.) 1959.

47. Madsen, P. R. and Tieche, H. L., Hydrocortisone Therapy for Bacterial Shock in Septic Abortion, Obst. and Gynec., 20:56, (July) 1962.

48. Janovski, N. A. and others, Soap Intoxication Following Criminal Abortion, New York State J. Med., 63:1463, (May) 1963.

49. Barnes, Ann B. and Ulfelder, Howard, Septic Abortion, JAMA, 189: No. 12: 919-924, Sept. 21, 1964.

50. Kadner, M. L., and Anderson, G. V., Septic Abortion With Hemoglobinuria and Renal Insufficiency With Special Reference to Clostridia Welchii Infection, Obst. and Gynec., 21:86-95, (Jan.) 1963.

51. Smith, Ronald, Smith, Leonard F., and Tenney, Benjamin, Soap Induced Abortion, Report of Five Cases, Obst. and Gynec., 20: 211-215, (Aug.) 1962.

52. Parsons and Sommers, Op Cit., p. 551-552.