Journal of medical ethics, 1990, **16, 61-65**

Unfinished feticide

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Author's abstract

A fetus may survive an intentional interference with its intrauterine environment (1) if gestational age is mistaken and the procedure of induced abortion does not kill the fetus, (2) if a change of heart takes place after abortifacient drugs are taken and the abortion does not proceed, and (3) if a high-multiple pregnancy is reduced to a singleton or a twin pregnancy to improve the likelihood that the remaining fetuses will reach viability. In each case, through cause or coincidence, an abnormal baby may be born. The well-intentioned physician, responding to a patient's medical or psychological needs, risks a legal action in negligence or assault brought by a deformed surviving child. This hazard means that medical termination of pregnancy and selective pregnancy reduction put the practising physician at substantial risk in a way not usually associated with induced abortion.

Two developments have taken place that can change the nature of ethical medical practice in the area of induced abortion. The first is the availability of effective drugs for non-operative termination of pregnancy (1). The second is the procedure of selective embryocide or feticide, in which a multiple pregnancy is reduce to a singleton or twin pregnancy by an ultrasonographically or fetoscopically directed operation aimed at destroying some but not all of the fetuses present (2–4). In these practices the well-intentioned physician faces hazards greater than those that attend ordinary induced or therapeutic abortion, in which the pregnant uterus is reliably and completely evacuated.

I do not mean to influence the wider debate on the morality or immorality of induced abortion. Those who oppose abortion on moral grounds may find support for their cause in the arguments that follow. But there will also be those who, despite the hazardous consequences of these newly popular procedures, will still perceive a duty to help individual patients in immediate and desperate trouble.

Key words

Feticide; abortion.

Thwarted abortion

A fetus may survive an attempt at abortion (1) if gestational age is mistakenly underestimated and procurement of the abortion does not itself kill the fetus, or (2) if, after abortifacient drugs are taken that fail themselves to complete the abortion, a change of heart takes place that stops attempts to complete the abortion by surgically evacuating the uterus. Neither circumstance is novel, but both have so far been rare.

In the second trimester, for example, neonatal survival has been reported after the operation of fetal extraction by hysterotomy (technically similar to caesarean section (5)) or when prostaglandins have been used to stimulate uterine contractions and the fetus is expelled vaginally (6). With hysterotomy the dangers are just those of immaturity. With prostaglandin-induced abortions, spasm of fetal and umbilical vessels occurs and fetuses that are born alive are damaged beyond the consequences of their immaturity. Injured neonates have thus occasionally survived attempts at abortion in the second trimester, either because the procedure has been discontinued (7) or because the delivered infant has been mature enough to live (5).

Second trimester methods of inducing abortion that both kill the fetus and ensure its expulsion are available. Intra-amniotic injections of hypertonic saline are usually feticidal before uterine contractions are induced by the hypertonic solution and the fetus is expelled (8); dilatation of the cervix followed by surgical evacuation of the uterus as a two-step procedure is considered to be the safest method of terminating pregnancy in the second timester (6,9). The fetus cannot survive such surgical evacuation of the uterus, but there have been reports of women changing their minds and not proceeding with evacuation of the uterus after the initial step, in which the cervix is softened and dilated by insertion of hygroscopic tents (10). In these cases the cervix may not always be firm enough to retain the gestation to term without the need for a supporting suture; the risk of chorioamnionitis and premature delivery may thus be increased although the fetus itself will not have been injured directly.

Medical induction of abortion is possible with the administration of the drug mifepristone (RU-486), the

'abortion pill'. Mifepristone antagonises the action of progesterone, the ovarian and placental hormone that is essential for the endocrine maintenance of pregnancy. Administration of mifepristone by mouth, usually together with drugs that promote uterine contractions, is followed in most pregnant women within a few days by bleeding from the uterus and then expulsion of the fetus (1).

Unintentional survival of iatrogenically damaged fetuses will more commonly follow failed attempts at medical abortion. When induced abortion was a crime, attempts to induce abortion with large doses of contraceptive steroids or oxytocics (drugs that stimulate the uterus to contract) were often as pharmacologically inappropriate as patients were desperate. In the 1970s, prostaglandin preparations were administered in early pregnancy as intramuscular injections or intravaginal suppositories (11). Heavy bleeding and incomplete abortion, as well as the possibility of the pregnancy continuing, often meant a need for curettage – which if used in the first place would have been the more certain procedure.

Mifepristone's greater effectiveness as an abortifacient drug in comparison with the mostly abandoned first-trimester use of prostaglandins has reintroduced the clinical promise of non-surgical abortion in early pregnancy (12). The ethical hazards are not new (13), but the historical reality is that the hazards were not, in the past, properly taken into account.

The main hazard that any medical abortifacient faces results from the fact that, unlike properly performed surgical evacuation of the uterus, there is an interval of time between administration of the abortifacient and occurrence of the abortion. During this time the abortion may be blocked by pharmacological inadequacy, by a change in the wishes of the woman having the abortion, or by both.

Clinical use of mifepristone therefore means that the fetus may survive, despite the intention, at the time of the drug's administration, for abortion to follow. Survival of the fetus may mean the birth of an iatrogenically damaged child.

Should a medical practitioner risk performing abortions with mifepristone?

Selective feticide

In most Western countries it can be lawful for a fetus to be aborted for eugenic and other elective reasons (14) (albeit through the ostensible purpose of safeguarding the mental health of the pregnant woman). With these induced abortions the uterus is emptied: the gestation is finished.

In the procedure of selective feticide, one or more of several fetuses is killed *in utero* with the aim of permitting pregnancy to continue: surviving fetuses are intended to develop to viability and to be born. Such selective feticide (1) can prevent the birth of an abnormal twin fetus without also aborting its normal fetal sibling, or (2) can allow some fetuses of a high-multiple pregnancy to survive when the alternative is for all to die from premature birth.

Observers who on moral grounds reject the feticide inherent in all induced abortion will straightaway reject selective feticide. For others, the *ethicalness* of selective feticide will vary according to the clinical circumstances. The *legality* of cases of selective feticide, however, may depend not so much on clinical circumstances as on statutes and case law.

EUGENIC SELECTIVE FETICIDE

In 1978, Aberg *et al* described cardiac puncture and exsanguination of a fetus with Hurler's disease to avoid aborting an unaffected twin (15). Since then, selective feticide in the second trimester by ultrasound or fetoscopically directed procedures, or by hysterotomy, has avoided the birth of twins affected discordantly with Trisomy 21 (8), Turner's syndrome (16), Tay-Sachs's disease (17), haemophilia suspected on the grounds of fetal sex (18), microcephaly (2), spina bifida (2) and bicephaly (19).

Inadvertent damage to an otherwise normal surviving fetus during selective feticide for eugenic reasons can happen immediately during the feticidal operation or can occur afterwards, from the development of a compromised intrauterine environment.

A formed, unexpelled, dead fetus becomes a 'fetus papyraceous', a fetus shrunken and parchment-like. The natural event is known to obstetricians. The surviving twin may have its growth retarded before delivery, in some cases reflecting the continued hostile intrauterine environment that led to the demise of the survivor's fetal sibling (20). There is also the risk that thromboplastins released from the degenerating fetal and placental tissues will cause coagulopathy in the remaining fetus or precipitate premature labour. The result of feticidal operations in the second trimester (other than hysterotomy and *sectio parva*) is to produce such a fetus papyraceous.

In another era, eugenic infanticide of the abnormal neonate was, or might again be, a safer option – safer, at least, for the normal sibling.

SELECTIVE FETICIDE AS AN ALTERNATIVE TO NATURAL FETAL DEATH

Selective feticide for non-eugenic indications may be indicated when there is a major collective threat to survival of the fetuses that can be lessened by reducing the number of candidates. The twin-to-twin transfusion syndrome is an example. High multiple pregnancy can also constitute such an intrauterine hazard.

Monozygotic (identical) twins often have connections between their vascular systems at the level of their shared placenta. Sometimes one vascular system dominates the other through such connections, resulting in anaemia and growth retardation for the donor, polycythaemia and cardiac failure for the recipient. In extreme cases only one cardiovascular system develops, with acardia of the malformed twin.

Both fetuses usually die if the condition is severe. The diagnosis can be made before fetal death by ultrasound. In one reported case of twin-to-twin transfusion the condition was treated by selective feticide at 25 weeks' gestation; the dependent twin's myocardium was disrupted with an ultrasound-guided needle; the normal fetal sibling was born at 37 weeks (21). In a recent case an acardiac, acephalic twin was removed at 22 weeks by hysterotomy; the sibling was born at 33 weeks (22). For these particular feticidal procedures there is no alternative treatment for the dominant twin's otherwise mortal cardiac failure. Other selectively feticidal procedures, however, are on less firm ethical and legal ground.

High multiple pregnancies can result from multiple ovulations induced with exogenous gonadotrophins, often in association with *in vitro* fertilisation or gamete intrafallopian transfer procedures, at which, respectively, multiple embryos or multiple oocytes have been transferred to the reproductive tract. There are many reports that describe selective reduction of high multiple pregnancies through feticide, resulting in more manageable twin or triplet pregnancies (3,4,23–28). The justification for selective feticide in such situations is one of salvage: without it, it is argued, the quadruplet, quintuplet or higher-multiple pregnancies would probably lead to the death from immaturity of all the fetuses.

Embryocidal or feticidal operations for the reduction of high multiple pregnancy in the first trimester are technically simpler than those used in the second trimester for eugenic reasons and for the complications of monozygotic twin-to-twin vascular connections. Ultrasound is used to visualise the fetuses. Early techniques involved selective aspiration of gestational sacs, either through the cervix or through the abdominal wall (4); complete abortion not uncommonly followed and this operation is obsolete. Nowadays a needle is passed into the beating fetal heart, so that the fetus is exsanguinated or a lethal substance such as air, potassium chloride or calcium gluconate is injected into the fetal circulation. The residue of the resorbing sac or sacs probably (but not certainly) causes little disturbance of the intrauterine environment. Complete abortion with the loss of all the fetuses can still follow. On the other hand there is sometimes a need to repeat the procedure, and then, as with medical abortion, a delay is introduced between initiation and accomplishment of the feticidal procedure during which the mother's attitude to the damaged fetus may change.

Selective feticide for salvaging iatrogenic high multiple pregnancies is a complex matter medically, psychologically and ethically (29–31). Although there is a shortage of reports on the eventual physical outcome for the remaining fetuses and on the mental outcome for the mother, the practice of fetal reduction is now widespread (30). Leader writers in medical journals agree, however, that urgent steps must be taken to avoid high multiple pregnancies arising from assisted conception procedures and thus to avoid this indication for feticide (29–31). *The Lancet*, for example, has warned that if 'there is a trend towards the use of fetal reduction this way, it is likely that some form of regulation or legislation will be imposed to contain the practice' (30).

SELECTIVE FETICIDE AND THE LAW

The present legal position of selective feticide is not clear. In common law countries such as the United Kingdom (32), Canada (33) and Australia, purposeful injury of a fetus is a criminal act, except when induced abortion is justified on the grounds that the alternative of continuing the pregnancy will endanger the physical or mental health of the mother. It could be argued that without evacuation of the uterus, without termination of the pregnancy as a whole, selective feticide falls outside the scope of this legal justification. The matter has not been tested in the courts of these countries. In one editorial from the United States (31), legal aspects of selective reduction were considered to be uncomplicated, because the procedure represents a variation of first-trimester termination of pregnancy. It does seem unlikely that the criminal law would be invoked to prevent selective feticide, given society's acceptance of induced abortion. The civil law, however, is a different matter.

A procedure aimed at feticide, including conventional induced abortion, is an intentional tort. In essence, the practitioner of abortion is protected from the law of tort because the fetus does not survive the procedure and does not have legal standing as a plaintiff to bring suit. This protection is lost if the injured fetus survives and is born. The injured person can then bring an action in negligence or in assault within whatever period of limitation applies for the jurisdiction concerned. In most countries this period starts with the attainment of legal majority.

Should a medical practitioner risk performing selective feticide?

Physicians in danger

Medical abortion and selective feticide expose the physician to legal liability in similar ways. Fetal injury sustained in an unsuccessful attempt at abortion – a thwarted abortion – may constitute assault. Similarly, an injury sustained before birth as a result of interference with a person's twin fetus, whether normal or abnormal, may constitute negligence. In each case a fetus has been disturbed by an iatrogenic action and has survived to make an issue of that disturbance.

Most obstetricians are familiar with the horrors that nature can link with reproduction. When a neonatal abnormality is caused by a medical procedure during pregnancy then the horror is worse.

Does this mean that selective reduction in the management of multiple pregnancy is an unsustainable operation? The fact that selective feticide is carried out regularly in some centres shows that there is a demand for it. It has been suggested by one leader writer that

there should be room for selective feticide as an option when circumstances are desperate (31), particularly when the alternative is total fetal death. The threat of total fetal death is most obvious in cases of severe twin-to-twin transfusion syndrome and in cases of quintuplets and higher multiple pregnancies. Twin fetuses discordant for a major abnormality may in practice, however, be in the same predicament: experience has shown, for example, that before selective feticide became available in Greece complete uterine evacuation was usually chosen by women who had twin fetuses discordant for thalassaemia major (34).

The alternative courses of action or inaction for couples who are considering selective feticide are therefore tragic. But for the physician the distinction between 'help' and 'doing no harm' becomes blurred when therapeutic interventions are powerful. There is danger in a doctor deliberately risking the resentment of, or the litigation brought by, a surviving child who attributes a deformity to an iatrogenic act.

Can a physician be protected from charges of assault or negligence when feticide is incomplete, well intentioned though the act may have been with respect to the patient? Two busy days in France in 1988 brought this question into better focus.

Government action in France

In September 1988 the French Ministry of Health gave approval for mifepristone to be made available at selected abortion clinics for medical termination of pregnancy (35). The several provisions attached to the drug's use included restriction to the first 49 days of pregnancy, approval only in association with the administration of prostaglandins to aid uterine evacuation, and respect for the usual (for France) eight-day thinking period between a woman's request for termination of pregnancy and performance of the abortion.

On October 26, however, the manufacturers of mifepristone, Roussel-Uclaf Laboratories, reportedly did not proceed with marketing because of what they described as the 'emotional reaction of a sector of public opinion' (36). Considerations for future liability under civil law may also have been important to Roussel-Uclaf, because already in France a midtrimester defect (severe oligohydramnios at 18 weeks' gestation) has been suspected to be attributable to mifepristone in a woman who had not proceeded with abortion after she had taken mifepristone in early pregnancy (35,37). By October 28, apparently under pressure from the French Health Minister, mifepristone was available again.

The pressure exerted on Rousell-Uclaf Laboratories by the French Government seems to have been extraordinary. The health minister was reported to have pronounced mifepristone essential for public health and to have warned Rousell-Uclaf that, under a 1968 law, the industry ministry had the power to seize the patent for the drug if the company did not resume production, and then award it to another laboratory. The health ministry also stipulated that women who take mifepristone must sign an agreement to undergo surgical abortion if the fetus is not expelled after taking the drug (36) – presumably to shift the responsibility for an injured surviving neonate to its mother.

The net result is that a series of extraordinary government actions may have gone some way to protecting not just the manufacturers of mifepristone, but also the physicians in France who use it.

Conclusion

Many in society regard abortion as a hard-won freedom for women. Society is unlikely to relinquish abortion. It therefore makes little sense to rule out methods that simplify abortion, especially those that render operation unnecessary. It also makes little sense to rule out selective feticide, at least when the alternative is that no fetuses survive.

But it is doubtful that the governments of many countries will deal quickly with the professional hazards that follow unfinished feticide. In the meantime there is little protection in civil law for the physician who interferes with a pregnancy that subsequently continues to term, if by cause or coincidence a real or imagined birth abnormality occurs in a neonate that has survived a procedure that was intended to harm it or its intrauterine sibling.

Until such protection is agreed on, physicians will face the fewest hazards if abortions are short, sharp and complete.

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