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Termination of pregnancy for fetal anomaly: evaluation of single centre results

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ABSTRACT

Aims: To assess the indications of termination of pregnancies (TOP) for fetal anomaly beyond 22 weeks of gestation.

Methods: It is a retrospective study conducted at Eskişehir City Hospital between January 2021 and December 2023. Our hospital which It serves as a tertiary referral center in the city. During the research period, 4143 births took place, and 495 women were treated in our high-risk unit. During the study period, 34 women underwent elective TOP at at least 22 weeks' gestation. Routine 18–20-week anomaly screening was recommended for all pregnant women.

Results: The sonographic findings revealed the presence of 15 cases of central nervous system malformation, 4 cases of micromelia and thorax hypoplasia, 1 case of diafragma hernia, 3 case of early IUGG, 2 cases of cardiac anomaly, 2 cases of neural tube defect, 3 cases of isolated thorax hypoplasia, 1 case of scoliosis, 1 case of renal agenesis, 1 case of thick nuchal fold, 1 case of partial corpus collosum agenesis. Among 34 cases, there were 1 case of mosaic trisomy 21, case of trisomy 21, 1 case of trisomy 1, 3 cases of trisomy 13, 2 cases of trisomy 18. Array analysis revealed a case of 14 p deletion, 1 case of 16 p 11.2 deletion, 1 case of 1p36 deletion. In all study population 5 cases underwent cesarean delivery. Majority of the terminations were achieved by misoprostol or cervical balloon application.

Conclusion: In conclusion, although late termination of pregnancy by fetocide procedure seems to be safe, earlier detection of fetal structural and chromosomal anomalies is mandatory.

Keywords: Fetosid, termination of pregnancy, fetal anomaly

INTRODUCTION

Advances in medical technology and the introduction of routine prenatal screenings have led to diagnosis of various fetal malformations during prenatal care.[1] In case of untreatable disease or malformation detected during prenatal care, majority of the parents seek for legal termination options of pregnancy due to fetal anomaly. There were many religious, social and ethical questions which were adressed by many articles which was not the scope of this article. Due to the possible abusements, Turkish law allows termination of pregnancy (TOP) in two cases: voluntary and elective since 1983. Abortion is just allowed before the 10th week of pregnancy in unwanted pregnancies. On the other hand, a pregnancy can be terminated at any gestational age if there is a serious maternal condition and/or untreatable fetal condition. There is no upper pregnancy limit in the legislation regarding pregnancy termination. According to the Turkish laws, approval for elective TOP may be given by two experts who declare that there is a maternal or fetal reason justifying TOP (law no. 2827-5, 1983). In majority of the European countries including France; England; Wales; Belgium; Finland; Norway, under limited circumstances; and Sweden, TOP can be performed until term in cases of fatal or serious fetal abnormalities., following approval by the National Board of Health and Welfare.[2] The aim of this study is to evaluate the indications for TOP in fetal anomalies that develop after the 22nd week of gestation in our clinic.

METHODS

It is a retrospective study conducted at Eskişehir City Hospital between January 2021 and December 2023. This

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study was conducted in accordance with the principles of the Helsinki Declaration and approved by the Eskişehir City Hospital Ethics Committee (Date: 22/11/2023, Decision No: 2023-62). Our hospital serves as a tertiary referral center in the city. During the research period, 4143 births took place, and 495 women were treated in our high-risk unit. During the study period, 34 women underwent elective TOP at least 22 weeks' gestation. Routine 18–20-week anomaly screening was recommended for all pregnant women. Ultrasound examinations were performed using Voluson E8 Expert (GE Healthcare, Chalfont St Giles, England). Examinations and invasive procedures were performed by the same specialist. Following completion of the fetal anomaly investigation, the couple was counseled by a multidisciplinary medical panel consisting of experts in obstetrics and gynecology, pediatrics, and pediatric surgery. The counseling included information on the termination procedure in addition to alternative management options. Since our study population includes pregnant women over the 22nd week of pregnancy, fetocide (intravascular potassium chloride injection) is performed in the prenatal period. Medical reports of all TOP cases were reviewed during the study period. Medical and demographic characteristics were recorded.

RESULTS

Mean age, gravidity, parity, number of miscarriages and gestational age at termination took place of the study population were 29.8±6.5 (18-44), 2.41 (1-6), 1.12 (0-5), 0.3 (0-4), 25.2 (23-32) respectively (**Table 1**). There were 13 (38.2 %) cases of primigravid where as 21 cases had at least 1 previous delivery. There were 23 cases with high secıond trimester screening test (32.4 %, 1/270). According to the sonographic findings, there were 15 cases of central nervous system malformation, 4 cases of micromelia and thorax hypoplasia, 1 case of diafragma hernia, 3 case of early IUGG, 2 cases of cardiac anomaly, 2 cases of neural tube defect, 3 cases of isolated thorax hypoplasia, 1 case of scoliosis, 1 case of renal agenesis, 1 case of thick nuchal fold, 1 case of partial corpus collosum agenesis.Among 34 cases, there were 1 case of mosaic trisomy 21, case of trisomy 21, 1 case of trisomy 1, 3 cases of trisomy 13, 2 cases of trisomy 18. Array analysis revealed a case of 14 p deletion, 1 case of 16 p 11.2 deletion, 1 case of 1p36 deletion. In all study population 5 cases underwent cesarean delivery. Majority of the terminations were achieved by misoprostol or cervical balloon application.

Table 1. Demografic characteristics of the study population

	n	Min±Max	Mean±SD
Age (years)	34	18±44	29.79±6.484
Height (cm)	34	150±175	163.65±5.624
Weight (kg)	34	51±113	71.71±15.518
Gravidity	34	1±6	2.41±1.480
Parity	34	0±5	1.12±1.175
Number of miscarriages	34	0±4	.29±.799
Gestational age at termination	34	23±32	25.15±2.862

Min: Minimum, Max: Maximum, SD: Standard deviation

DISCUSSION

Consistent with the previous study, the present study showed that a substantial proportion of TOPs beyond 22 weeks of gestation for fetal anomaly could have been performed earlier with timely diagnosis.[2] Again consistent with the previous studies the majority of anomalies in our study population were central nervous system defects, multiple malformations, and genetic–chromosomal diseases.[2,3-5] Recent reports indicated that structural anomalies had a higher frequency in the TOPs beyond 22 weeks of gestation, while genetic–chromosomal anomalies were more frequent in the early TOP group.[4,6] In our study population, all cases were beyond 22 weeks of gestation, and in all cases fetocide was required before labor induction, among 34 cases chromosomal abnormality was detected in 8 of the cases whereas 23 cases had structural anomaly detected by sonography at 20 weeks fetal anomaly screening. In our study population there were 2 cases of trisomy 21, 2 cases of trisomy 18 and 3 cases of trisomy 13, distribution of chromosomal anomalies was not consistent with the previous reports in which the most frequent chromosomal anomaly was trisomy 21.[2]

In our cohort, there was case with cardiac malformation, the rate in a study from Turkey was 4.6%. In majority of the studies, cardiac malformation rate was reported around 3-10% of the cases.[4-9] It seems that recent advances in ultraound technology and increase in the number of echocardiographers may lead to higher detection rate of cardiac anomalies.[10] The most commonly used method for fetocyst for late termination of pregnancy due to fetal abnormalities (TOPFA) involves injecting potassium chloride (KCl) into the fetal heart and is likely to be painful after the 22nd week of pregnancy. Previods study demonstrated that, fetal umbilical phlebotomy followed by fetocystomy for fetal analgesia therefore appears to be a safe procedure for the mother and allows painless death of the fetus when late termination of pregnancy (TOP) is indicated.[11] Another fetocide procedure was reported to be injection of lidocaine (1%) to create permanent fetal cardiac asystole for the purpose of fetocyst in late termination of pregnancy. Data showed the procedure

to be successful in 92% (46/50) of cases, with complete cessation of cardiac activity, in one case, lidocaine failed and fetocyst was applied with KCl. No maternal side effects were observed. Authors concluded that lidocaine is an effective drug in inducing fetocyst at doses below the toxic dose for the mother.[12]

When a fetal abnormality is diagnosed, the woman may be advised to terminate the pregnancy. It is important to avoid delays in the evaluation process because after the 21st week of pregnancy, fetocyst is required as part of termination of pregnancy, with only a few rare exceptions. According to the stusy, 47 pregnancies were terminated after the 24th week of gestation. In 43 cases, intracardiac potassium chloride fetocide was administered before labor induction. One in 47 women was not referred to a tertiary referral centre; 39 women were referred within 1 week of diagnosis of the abnormality, but in seven cases referral was delayed by more than 2 weeks. Authors concluded that, Inconvenient and avoidable delays occur. In some cases this may mean that the woman must undergo a fetocite, which could have been avoided if she had been referred to a tertiary center more quickly.[13]

As the risk of complications increases with advancing gestational age[14] and according to the recent data indication possibility of identification over half (56%) of major cardiac abnormalities during first trimester screening program, which constituted approximately two-thirds (64%) of all major cardiac anomalies detected antenatally.[15]

Spontaneous vaginal delivery should be a primary option for pregnancy termination with fetal malformations, in most pregnancies complicated by the presence of fetal anomalies, Some fetal malformations may be assiciated with dystocia, bleeding, or disruption of a protective sac. Giant omphaloceles, severe hydrocephalus, and large myelomeningocele and teratomas were reported to be some of the anomalies which may necesitates cesarean delivery. As cesarean delivery is associated with higher cost and complications, For this reason early detection of anomalies is crucial.[16]

In our series majority of the most commonly encountered anomalies were presented with consistent rates with the literature, and although our data and previously published data showed lower complication rates, unwanted psychological impact and health burden may be avoided with timely detection of major anomalies.

The limitations of this study include the relatively small number of patients and the fact that the research was conducted at a single medical centre.

CONCLUSION

In conclusion, although late termination of pregnancy by fetocide procedure seems to be safe, earlier detection of fetal structural and chromosomal anomalies is mandatory.

ETHICAL DECLARATIONS

Ethics Committee Approval

Approved by the Eskişehir City Hospital Ethics Committee (Date: 22/11/2023, Decision No: 2023-62).

Informed Consent

Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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