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Incidence and Complications of Obstructed Labor in Fuh

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ABSTRACT
Introduction: obstructed labor is among the most common reasons for maternal & fetal mortality and morbidity in Egypt, however obstructed labor is a predictable reason for such morbidities.
Objective: Our study aimed to investigate the prevalence of obstructed labor and the causes that lead to this condition in Fayoum University Hospital. **Patients & Methods:** This prospective cross-sectional study had been conducted at Fayoum University Hospital. Our study was performed on fifty pregnant subjects with a mean age of 20.3 years old, all were more than 36 weeks of gestation.
Results: Our study revealed that forty-two patients (84%) delivered by normal vaginal delivery, while eight patients (16%) developed obstructed labor on the trial of normal labor and underwent Cesarian section delivery. The etiologies of obstructed labor had been cephalo-pelvic disproportion in 6 (75%) & abnormal presentation in 2 (25%) of the candidates. All fetuses had been born living & all had low APGAR score after one minute. **Conclusion:** Obstructed labor is an easily preventable reason for maternal & fetal mortality & morbidity with regular antenatal care.
Keywords: Obstructed labor, Abnormal presentation, Fetal birth weight.

INTRODUCTION

Obstructed labor is a leading etiology of maternal & fetal morbidity & mortality in countries in which child mal-nutrition and young marriage is common with subsequent below normal pelvic dimensions, and where there are no accessible operating health institutes with the ability of performing operative deliveries. In addition to causing serious maternal illnesses mostly from infection and haemorrhage, obstructed labour also causes pelvic & perineal fistulae, as well as skeletal & neurological issues over time. Neonatal asphyxia also frequently results in foetal deaths [1].

The main etiology of obstructed labor reviewed in many studies had been cephalo-pelvic disproportion being the main cause for 80.6 percent in JUSH, 67 percent in a Nigerian research, & 41.1 percent in an Indian study [2, 3, 5]. In cases of obstructed labour, several techniques should be performed to remove the obstruction. Caesarean section delivery was the primary method, occurring in eighty five percent of cases in a Nigerian research & 63.3 percent of cases in Indian research [3, 5].

In the examined areas, complications among women with obstructed labour included prolonged surgical duration in fourteen percent of cases in India & puerperal sepsis in fifty-seven percent of cases in Nigeria compared to 12.5 percent in India. In Nigeria, obstructed labour causes thirty-two deaths per 1000 women, but in Jimma University Specialised Hospital, the rate is ninety-one deaths per 1000 women. In Nigeria, the perinatal mortality rate was 294/1000, while in India it was 160/1000 [2, 3, 4, 5]. Therefore, this research was performed to detect incidence, etiology & fate of obstructed labor in the hospital. This would assess to have a wider & updated picture on the problem. It asses to compare the results with previous studies done in different countries, which may give an idea about the efficacy of health service care.

MATERIALS & METHODS

Clinical characteristics: This prospective cross-sectional study was conducted in Fayoum University Hospital. Our study was performed on fifty pregnant women between seventeen to thirty years old, all were more than 36 weeks of gestation.
Exclusion criteria: Previous caesarian section delivery and all mothers who had been sent to the labor room with a sign of true labor.

The average age for our study group was 20.3 years. The candidates of our study; nineteen patients were living in Fayoum City, twenty-nine patients were living in rural areas related to Fayoum City, one patient was living in Elwahat governorate, and another patient was living in Cairo governorate.

Ethics Approval Statement: The research was approved by the Ethics Committee of the Faculty of Medicine, Fayoum University, Egypt. All candidates gave written detailed consents. Patient confidentiality was maintained, and the research was conducted all through in accordance with Helsinki.

Statistical analysis

The SPSS version 25 statistical program, developed by IBM and located in Chicago, IL, USA was used for the study. The quantitative values were presented using the standard deviation (SD) and the mean. The qualitative characteristics were expressed as frequency and percentage. We used the Fisher exact test to look for correlations between qualitative variables when any of the predicted cells were fewer than five. For paired categorical data with just two outcomes and two measurements, the Mcnemar test was used to evaluate multiple testing. For paired categorical data with more than two outcomes and only two measurements, a marginal homogeneity test was used to evaluate multiple testing. To compare quantitative variables between two sets of normally distributed data, the t-test

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(t) was used. To compare different ways of looking at the same set of normally distributed data, we used a paired t-test. To compare the different readings of non-normally distributed data within the same group, we used the Wilcoxon signed-rank test. We created receiver operator characteristics (ROC) with maximum sensitivity and specificity values to assess the instrument's performance. The AUROC, or area under the ROC curve, is a way to measure how accurate the test is. We defined statistical significance as a P-value ≤ 0.05.

RESULTS

All of our patients delivered either normal or by Caesarian section between thirty-eight and forty-two weeks of gestation, only two patients had previous pelvic operations for pelvic fractures, however both had no obvious disability, and the remaining forty-eight patients had no history of any previous pelvic operation. Twenty-one patients delivered at Fayoum University Hospital, sixteen patients delivered at Fayoum General Hospital, and the remainder thirteen patients delivered at private centers. Two patients delivered by Caesarian section as they preferred Cesarian section and were excluded. There was a total of 50 candidates of which 8 had been diagnosed to have signs of obstructed labor (16%). Two (25%) of the obstructed labor cases were below the age of 20 years and the rest of them, 6 (75%) in the age group of twenty to twenty-nine years, all of them delivered by Caesarian section. The other forty-two candidates were delivered by normal vaginal delivery. Thirty (60%) of the obstructed labor cases did not have antenatal care follow-up, however the rest had at least one time. Forty (80%) of the cases were referred by health centers to FUH after at least twelve hours of labor, & travelled more than 10 km (table 1).

Table (1): candidate data

Health service utilization	Number of cases (50)	Percent
ANC follow up		
One follow-up	20	40%
No follow-up	3o	60%
Source of referral		
Self	3	6%
Hospital	7	14%
Health center	40	80%
Duration of labor before reaching FUH	5	10%
< 12	30	60%
12 – 24	15	30%
> 24		
Distance for FUH		
< 10	3	6%
10 – 20	40	80%
> 20	7	14%

With regard to reasons for obstructed labor; cephalon-pelvic mismatch was the leading cause in 6 (75 %) followed by abnormal presentation in 2 (25 %) of the candidates (Figure 1).

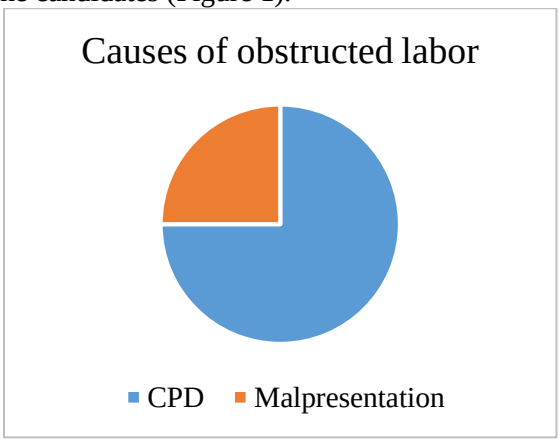

Figure (1): Causes of obstructed labor.

The most common type of intervention was a Cesarian section in 8 (100%) of the patients, no cases needed laparotomy or destructive delivery (Craniotomy & evisceration). Eight (16%) of the fetuses who were delivered had low APGAR score after five minutes. No perinatal mortality in our study. Three neonates were less than 3100 gm. Eleven neonates were between 3200-3300 gm. Seventeen neonates were between 3400-3500 gm. Fifteen neonates were between 3600-3700 gm. Four neonates were more than 3800 gm (Figure 2).

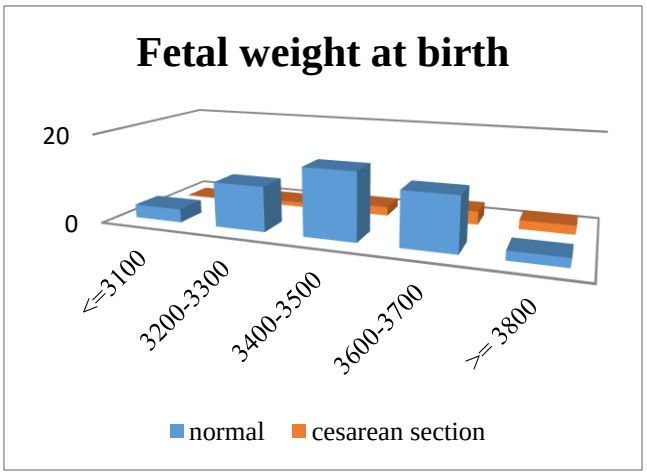

Figure (2): Fetal weight at birth.

From the eight cases delivered by Cesarian section, uterine rupture was the most common complication of obstructed labor which happened in 2 (25%) and sepsis in 2 (25 %) of the candidates. Bladder injury was diagnosed intraoperatively in one patient (12.5 %) One case (12.5 %) had a combination of complications (Table 2).

Table (2): complications of obstructed labor

Complication	Number	Percent
Rupture	2	25%
Sepsis	2	25%
Bladder injury	1	12.5%
Combination of complications	1	12.5%

DISCUSSION

The study purpose was to determine the incidence, etiology and fate of obstructed labor. The study revealed the related problems that could affect the health service, community and the whole nation. Our study showed higher incidence of obstructed labor (16%) more than incidence in the last studies done in another countries [2, 3, 4, 5]. This could be attributed to the fact that our hospital is a referral central hospital covering a wide surrounding area & many of the referred candidates had signs of true labor.

60% of the obstructed labor cases did not have antenatal care at all, which is similar to other studies [2, 3]. Antenatal care is a poor way to prevent pregnancy & delivery complications, however it could give the health providers time to prepare for delivery and study risk factors of obstructed labor trying to prevent it. Moreover, high-risk patients would be referred to bigger institutes with subsequent reduction of morbidly and mortality to the pregnant woman and her neonate. Large percentage of the cases had labor pain for minimum of 12 hours & 25% of them came with rupture uterus.

Cephalo-pelvic disproportion was the leading reason for obstructed labor (75%), which is matching to previous studies done in Africa in Nigeria [2, 3]. Our study candidates gave birth to neonates with their weight ranged from 2500- 3999 grams that confirms that the suggested reason of obstructed labor was contracted pelvis or malposition rather than fetal size.

Cesarean section was the management of choice in our cases of obstructed labor, which is higher than the studies done in Nigeria, India, and Ethiopia [2, 3, 6].

Surgical infection was the most common complication of Cesarean section (25 %) that could be attributed to lack of proper prophylactic antibiotic administration.

Since uterine rupture is a major reason for maternal haemorrhage & sepsis, which are significant reasons for maternal death & morbidity, these two conditions were the most frequent complications of obstructed labour in our study. Nonetheless, sepsis was the most frequent consequence in the Nigerian study [3].

LIMITATIONS

The limitation that faced our study was the limited number of co-operative candidates as well as limited follow up in antenatal care clinics that reduced the ability to study underlying causes and results of obstructed labor.

CONCLUSION AND RECOMMENDATIONS

Our study revealed that obstructed labor as well as its complications were associated with low awareness of the importance of good efficient antenatal care, which is significant factor leading to maternal and fetal mortality and mortality. So, we suggest to prevent such problems, that the ministry of health has to arrange learning programs to encourage pregnant women to do their regular antenatal care, with improvement of the service provided on the remote health centers.

This would help to detect the cases at higher risk of development of obstructed labor, moreover improvement of the referral system to the central hospitals with detailed pregnancy history would allow prevention of possible complication in such cases. Finally, improving the transportation system so that the cases would reach the hospital as early as possible preventing incidence of complications.

- **Data availability statement:** The data that support the findings of this research are available from the corresponding author on reasonable request.
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