LABOUR OUTCOME IN NULLIPARAS WITH UN-ENGAGED FETAL HEAD AT TERM PREGNANCY IN KHYBER TEACHING HOSPITAL, PESHAWAR

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ABSTRACT

Objective: To determine the outcome of unengaged fetal head in nulliparous women at term pregnancy at Khyber Teaching Hospital, Peshawar.

Material and Methods: This descriptive case series was conducted at department of Gynae and Obstetrics,Khyber Teaching Hospital,Peshawar from December 2014 to May 2015 with a sample size total of 111 patients were included in the study using 16.89% proportion of caesarean section 95% confidence level and 7% margin of error. Sampling technique was non probability sampling. All the maternal data was collected in predesigned Performa. All women of age 19-35 years, nulliparous, singleton pregnancy, full term and with no medical illness were included.

Results: In this study, patients were in age range 19-35 years and heights of the patients were 140-160cm. Amongst 111 patients, normal vaginal delivery occurred in 71.71% patients , instrumental delivery in 10.8% and 16.89% patients underwent low segment caesarean section.

Conclusion: Our study concluded that unegaged fetal head in term pregnant women admitted are subjected to more obstetric interventions. An increase in total duration of labor can also be expected in these cases. If the attitude of watchful expectancy and timely interventions used in these cases in which no significant etiological factor is found, by plotting a progressive labor on a partogram and using oxytocin judiciously when labor appears to be taking a protracted course, most of these will deliver vaginally with minimal maternal and fetal morbidity. There is a need to produce guidelines on management of women admitted to tertiary care in full term to reduce the risk of unnecessary interventions

Key Words: unengaged, nullipara, term.

INTRODUCTION

The concept of "station" or degree of engagement was first expressed by Muller in 1868, used extensively in clinical obstetrics today both in its absolute form for prognostication. Its relative form as a rough measure of progressive descent and as a guide in evaluation and management of the laboring patients.[2]

Classically, the first stage of labor is concerned with cervical dilatation and the second stage with descent and expulsion. Engagement of the fetal presenting part followed by descent through the birth canal is primary features of labor mechanisms.

Engagement in vertex refers to the descent of the biparietal or largest diameter of the normally flexed fetal head has passed through the inlet, the head is engaged. Although, engagement of the fetal head usually is regarded as a phenomenon of labor in nulliparous, it commonly occurs during the last few weeks of pregnancy. When it does so, it is confirmatory evidence that the pelvic inlet is adequate for the fetal head "with engagement the fetal head serves as an internal pelvimeter to demonstrate that the pelvic inlet is ample for the fetus"

It has been observed that nulliparous entering labor with the fetus well engaged frequently do not show further descent until the second stage of labor. Whereas those not deeply engaged may show additional slow descent throughout the first stage of labor.[3] As a corollary, nulliparas with unengaged fetal head at the onset of labor are viewed with some concern since this may presage inadequate fetopelvic relationships or abnormality. Qualitatively, engagement of the fetal head in nulliparous is recognized to be related to delivery outcome. In that the incidence of cesarean section in patients starting labor with unengaged heads is 6 to 8 times that of patients with deeply engaged fetus.

Eastmen and Hellman point out the engagement conclusively demonstrates the adequacy of the pelvic inlet, exceptions being recognized the absence of engagement on the other hand may not always be indicative of pelvic contraction, where as the incidence of inlet contraction is decidedly higher in this latter group. It is noted that labor is normal in about 87% of nulliparous with unengaged head at the onset of labor. They admonish that the finding of non-engagement at the onset of labor calls for careful evaluation of the pelvis.[1]

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similarly other studies showed that unengaged fetal head in a primipara in early labor is not alone indication for cesarean section.[3] Bishop (1955) made correlations between the station of fetal presenting part at the onset of labor and the duration of labor, and more particularly on the latent phase of the first stage.2There appears to be clear-cut relationship between initial cervical dilatation and initial station.[4]

Failure of engagement at term or even at the onset of labor was found to be a normal occurrence by and large. However, age, marriage conception interval, height of the patients, position of the fetus, and birth weight of the baby are particularly correlated with the engagement, of head in primigravida. Earlier the engagement of head, shorter was the duration of pregnancy. Earlier the engagement during pregnancy, shorter was the duration of labor. Duration of spontaneous labor ,was shorter in engaged head group. Incidence of labor beyond 12 hours was more in the unengaged head group 54.7% than in engaged group 34%. Average duration of labor in primi with unengaged head was 14.6 $\pm$ 4.2 hours and 12.2 $\pm$ 4.5 hours in the engaged head. Difference was not significant, however, instrumental delivery and cesarean section were less in the engaged group.[5]

Pralhad Kushtagi (1995) studied 100 cases, only 17% of nulliparous woman had engaged fetal head at admission in labor. Engagement occurred during the period of maximum slope of cervical dilatation in nulliparous woman. Course of labor was uninfluenced by the degree of engagement. According to Saropala L Chathurachinda, controversy still exists over the significance of the fetal head level in early labor whether it bears any relationship with mode of delivery. In his study, correlation was made between fetal head level on admission of 98 primigravidae and mode of delivery showed a higher cesarean rate among patients who presented with high head.[7]

According to Kaur D and Kang M (2000), incidence of normal labor was 95 percent with station 0 or below on admission. There was need to resort to forceps or LSCS in 50 percent of cases with free floating head and above 3 station. Forceps in 15.8% in free floating and 19.3 percent in above 3 station group. Incidence of primary dysfunctional labor and secondary arrest of labor was higher with free floating and above 3 station group.[6]

Characteristics of the average cervical dilatation curve is known as the Friedman labor curve, and a series of definitions of labor protraction and arrest were subsequently established.[13,14] However, subsequent data of modern obstetric population suggest that the rate of cervical dilatation is slower and the progression of labor may be significantly different from that suggested by the Friedman labor curve.[15,16,17] When a pregnant woman is admitted during the latent phase of labor, physicians should set reasonable expectations for labor progress to avoid unnecessary interventions and anxiety.[12]

Apparently there are no guidelines or protocol on the management of mothers arriving near full term with unegaged head. Also those outcomes have not been explored to see if they are result of admitting them in latent phase or due to time taken before intervention. The purpose of our study is to identify the adverse pregnancy outcomes related to the early hospitalization of nulliparous pregnant women in full term with unengageded heads,both maternal and fetal aspects are considered and make recommendation to all health professionals tempting to admit these women that all women should be given adequate training during pregnancy and advised that it is best to get evaluated when near term started.

MATERIALS AND METHODS

This descriptive case series was conducted at Gynae and Obstetrics department of Khyber Teaching Hospital, Peshawar from Dec 2014 to May 2015. Sample size was 111, using 10% proportion of instrumental delivery, 95% confidence interval and 2% margin of error. Sampling technique was consecutive (non probability) sampling. Inclusion criteria was all women of age 18-35 years and nulliparity, with singleton pregnancy and at term (gestational age 37-42 weeks), who presented in latent phase of labor. Exclusion criteria was multiple gestation, previous caesarean delivery, antepartum haemmorage and those with chronic medical disorders. After approval from research ethical committee. Patients in latent phase of labor attending labor room or out patient department were selected. An informed consent was taken from the patients for including them in study. Information collected included socio-demographic characteristics and obstetric history such as gravidity, parity and gestational age. All the investigations were done by hospital laboratory. All those women were examined by portable ultrasound in labor room to confirm criteria needed in our study. Progress of labor, fetal head engagement and maternal and fetal well being assessed by partogram. Indication for instrumental delivery determined. All this data was recorded on a specially designed proforma regarding mode of delivery like SVD and Instrumental Delivery and patients later on for LSCS. Confounding factors and bias was controlled by following exclusion criteria. Data was stored and analyzed in SPSS version 20.0. Mean+ SD was calculated for numerical variables like Age, Parity, Fetal head engagement level, mode of delivery, duration of labour. Frequencies and percentages were calculated for categorical variables like Mode of delivery,duration of labor. Mode of delivery and duration of labor was stratified among Age, fetal head level and different stages of labor to see the effect modifications. All results were presented in the form of tables.

RESULTS

This study was carried out on 111 patients at the Department of Obs & Gynae, Khyber Teaching Hospital, Peshawar. The station wise (fetal head position) distribution is having number of pregnant women at

Table 1: Case distribution according to fetal head station

Group	Number of cases	Percentage
FF	33	30.6%
-3	48	43.2%
-2	24	21.62%
-1	6	4.5%

Table 2: Average duration of labor

Group	1st stage (hr)	2nd Stage (min)	3rd Stage (min)	Total Duration (hr-min)
FF	12.2	46	7.3	13.13
-3	11.22	31	7.5	12.06
-2	10.31	28	7.03	11.06
-1	8.02	26	6	8.34

Table 3: Mode of Delivery

	Number	Percentage
Total	111	100.00
Normal vaginal delivery	79	71.17
Instrumental delivery	12	10.81
Low segment C section	19	16.89

Table 4: Comparison of mode of delivery with other studies

	Kaur D (2000)	Tanzania 2014	Chaudhry at el (2009)	Present study
Patients No.	130	484	148	111
NVDs (%)	68.35%	61.2%	58.57%	71.17%
ID (%)	12%	—	23%	10.81%
LSCS (%)	17.75%	26.5%	18.6%	18.02%

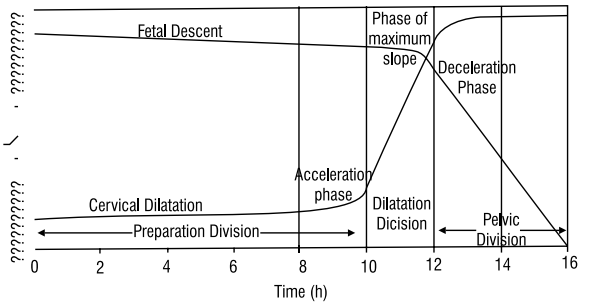

Figure 1: Course of labor based on dilatation and descent

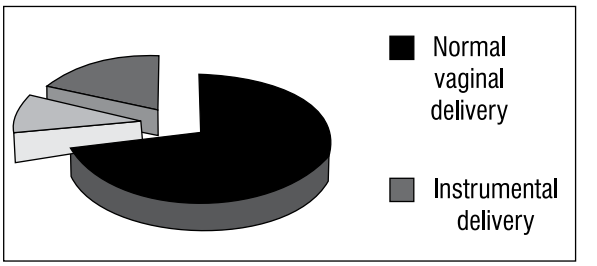

Figure 2: Mode of delivery

position FF was 33 (30.65%), at position or station -3 was total of 48 (43.2%), at station -2 were 24 (21.62%) and at station -1 were 6 pregnant women (4.5%), (Table 1). Frequency for mode of delivery and its comparison with other studies are shown (Table 3 and Table 4)[8,9] where 79 (71.17%) ended in Spontaneous Vaginal Delivery while 12 patients (10.81%) had instrumental delivery and the rest 19 goes through LSCS. Whereas stratification of duration of labor in different stages and its comparison with other studies are presented in Table No. 2 and 5 respectively.[10,11]

DISCUSSION

The need to reduce surgical or medical procedures amongst pregnant women in labor is a challenge in most of clinical settings. This has led to never ending debate between natural childbirth and the techno-medical model of childbirth[18,19]. Findings of a survey by Baitl et al suggested that the women who were hospitalized to labor ward while were still in the latent phase are faced with higher risk of failed progress in active stage, oxytocin augmentation, fetal scalp pH testing and fetal heart rate testing.[20,21,22]. According to Chuma C et al, the most prevalent age group in their study conducted on 500 women presenting in latent phase of labor was

Table 5: Comparison of average duration of labor with other studies

Station	Kaur D et al (2000)			Friedman et al (1965)			Present Study		
	1st Stage	2nd Stage	Total	1st Stage	2nd Stage	Total	1st Stage	2nd Stage	Total
FF	18'52"	0.92	19'44"	—	—	—	12'20"	46"	13.13
-3	18'52"	0.95	19'47"	22'6"	0.71"	23'31	11'22"	37"	12'6"
-2	14'9"	0.64	14'73"	20'9"	0.98"	21'97	10'31"	28"	11'6"
-1	11'9"	0.53	11'62"	18'3"	0.92"	18'95	8'2"	26"	8'34"

20-35 years age group[18], this was almost in accordance with our study where the dominant age group was 19-35 years and mean age was 24.25 + 4.47 years. One hundred and eleven cases of nullipara with unengaged head at term during labor was studied to assess the relationship of fetal head station with the mode of delivery. It allows nullipara with unengaged head, in the absence of obvious CPD to deliver vaginally under vigilant supervision and judicious use of oxytocin. There was statistically significant ($P<0.01$) increase in average duration of I, II stages and total duration of labor as in Table 5. The incidence of instrumental deliveries and caesarean rates were higher with higher fetal station and it was statistically significant ($P<0.01$). The mode of delivery in the study conducted at Tanzania in 2014 was spontaneous vaginal delivery in 61.2%[15] which is exactly similar to our study results, 71.17% of cases had normal vaginal delivery, 10.81% had instrumental delivery and 16.89% underwent caesarean section as in Table 4. Patients with higher fetal station call for constant vigilance on part of the obstetrician.

There were several limitations of our study. First, the sample size is small so the results cannot be generalized and secondly, only Khyber Teaching Hospital was taken as the centre of study. Inclusion of hospitals from the same locality could give better idea about the outcomes prevailing in this locality.

CONCLUSION

Our study concluded that nulliparous women with unengaged head admitted at Khyber Teaching Hospital, at term during labor should be regarded with suspicion and apprehension. Dysfunctional labor occurs in only small proportion of patient with unengaged head. The incidence of active surgical intervention in nullipara with unengaged fetal head at term or the onset of labor is quite high. An increase in total duration of labor can also be expected in these cases. If the attitude of watchful expectancy and timely intervention is used in these cases especially in which no significant etiological factor is found, by plotting a progressive labor on a partogram and using oxytocin judiciously when labor appears to be taking a protracted course, most of these will deliver vaginally with minimal maternal and fetal morbidity. Therefore it is needed to produce guidelines, on management of women with unengaged fetal head admitted in latent phase labor, to reduce the risk of unnecessary interventions.

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