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## Relationship between maternal thyroid function disturbance and malpresentation in term fetus

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### Abstract

**Background:** Malpresentation is any presentation other than the vertex, breech presentation at term is the most common abnormal fetal presentation and is associated with neonatal and maternal morbidity and mortality. Many etiological factors associated with malpresentation including prematurity, intrauterine growth restriction; uterine and pelvic abnormality and endocrine diseases as in hypo – or hyperthyroidism which impair obstetrical outcome.

**Objectives:** To study and evaluate the relationship of disturbed maternal thyroid function during gestation and abnormal fetal presentation at term.

**Patients and methods:** Prospective randomized study of pregnant women

Over nine months period from October 2013 to July 2014 A hundred healthy pregnant women who living in Tikrit and Al-Fallujah cities with age ranging from 19 – 45 years old (mean age of 28.5) randomized selected undergone history and clinical examination, obstetrical ultrasonic examination done for them with blood sample taken at term(37 gestational week and more) for thyroid function assessment through free thyroxin T3, bound thyroxin T4, thyroid stimulating hormone TSH.

**Result:** A fifty pregnant women were cephalic presentation (50%), thirty five were breech (35%) and other presentations such as shoulder, face, brow were 10%, 4% and 1% respectively. Normal thyroid function through thyroid parameters was shown in (83%) of the pregnant (class I), (8%) of cases were associated with hyperthyroxinaemia (class II) and (9%) were hypothyroxinaemia (class III); 2 cases of cephalic presentation (2%) of total cases; 6 cases of breech (6%) of total cases and one case of shoulder presentation (1%) of total cases were hypothyroxinaemia, 4 cases of cephalic presentation (4%), 3 cases of breech (3%) and one case (1%) face presentation were (class II) Hyper thyroxinaemia).

**Conclusion:** Pregnant women with abnormal thyroid function during gestation are at risk of fetal malpresentation. Hypothyroxinaemic pregnant showing high incidence of breech presentation with more incidence of caesarean section and more fetal, maternal and obstetrical complications.

**Keywords:** Hypothyroxinemia, hyperthyroxinaemia, fetal malpresentation, breech, fetal goiter.

### Introduction

Presentation refers to the part of fetus that is lower most within the maternal pelvis. At term 95% of fetuses present to the lower segment of the uterus with the vertex presentation and hence vertex is the normal presentation. The vertex is the diamond shaped area of the skull between the two biparietal eminences laterally and the anterior and posterior fontanelles, while the presentation other than vertex is termed as a malpresentation which may be due to fetal or maternal reasons but in the vast majority the definitive aetiology is unknown. Known associations include a large baby, polyhydramnios, multiple pregnancy, low-lying placenta, preterm labour, anomalies of the fetus (neck tumors), uterus (congenital or acquired, lower segment fibroid) or pelvis (contracted or deformed) <sup>[1]</sup>. Malpresentation includes breech, shoulder, brow and face presentation. Fetal presentation is determined by the portion of the fetus that can be felt through the cervix <sup>[2]</sup>.

### Types of malpresentation:

1-Breech presentation: the incidence of breech presentation varies according to gestation, 40% at 20 weeks but 6-8% at 34 week and approximately 3-5% of all pregnancies reach term with fetus in breech presentation <sup>[2]</sup>. In general little is known about the aetiology of breech presentation. factors such as prematurity, intrauterine growth retardation, pelvic abnormalities as well as uterine anomalies, placenta praevia, polyhydrominous, multiparty, umbilical cord problems and

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congenital fetal abnormalities only explain 15% of breech presentation [2]. It is interesting to note that in a few congenital endocrinological syndromes (prader-willi, pituitary agenesis) in which hypothalamic function is impaired and as a consequence fetal thyroid function, the rate of breech presentation is very high (up to 20%). It is believed that breech deliveries are associated with maternal morbidity and mortality, especially after vaginal delivery, neonatal mortality and serious neonatal morbidity in fetuses who presented with breech presentation and who were delivered by caesarean section compared with those who had a planned vaginal delivery. It was questioned whether there is still a place for planned vaginal breech birth and primary caesarean section was advocated for all breech term presentation which was however criticized by others [3]. In general, caesarean section still has an increased maternal mortality rate compared with non-operative delivery [4]. External version to cephalic presentation substantially reduces breech presentation although serious fetal and obstetric complications have been described, it had been calculated that six attempted external cephalic version are needed to avoid one caesarean section because of breech malpresentation.

2-Face presentation: this malpresentation occurs in about 1: 500 labours and is due to complete extension of the fetal head. In majority of cases, the cause for the extension is unknown, although it is frequently attributed to excessive tone of the extensor muscles of fetal neck. Rarely extension may be due to fetal anomaly such as thyroid tumour [3]. The diagnosis of face presentation can be made by vaginal examination and palpation of the nose, mouth, eyes or chin (mentum) but the presence of anencephaly or thyroid goiter also needs to be excluded by ultrasound [4]. The presenting diameter is the submento – bregmatic, which measure 9.5cm and is approximately the same in dimension as a suboccipito–bregmatic (vertex) presentation, engagement of the fetal head is late and progress in labour is frequently slow. If progress in labour is excellent and the chin remain mento-anterior, vaginal delivery is possible [3]. As the mento-lateral or mento -anterior position is more favorable, but poor progress in the first or early second stage indicate that the safer option is caesarean section. Once the face is at outlet in mento-lateral or mento-anterior, forceps delivery can be performed by skilled personnel [1]. If the chin is posterior (mento-posterior), delivery is impossible as the extension over perineum cannot occur and c.s. is performed [3].

3-The brow presentation: is the least common malpresentation, incidence about 1:1000-1:2000 deliveries. It is due to a deflexed head and is associated with prematurity. Other rare associations are fetal neck tumours (including goiter) which cause obstruction to head flexion. On vaginal examination, the forehead is the leading part felt through the cervix. The anterior-posterior diameter of the head is therefore (mento-vertical) and is about 13 cm at term [5]. The brow presentation may be corrected to vertex during labour by flexion of the neck or undergo further extension and present as a face, which can be delivered vaginally if in mento–anterior position. Persistence of brow presentation with slow progress of labour at term is not compatible with vaginal delivery and necessitate caesarean section, augmentation of labour with oxytocin is not advisable. Although vaginal delivery is possible in preterm fetus, there is small risk of spinal cord injury and caesarean section is preferred. Because the presenting part of the fetus does not fit the pelvis, there is greater incidence of cord prolapse and uterine rupture in neglected cases [1].

4-Shoulder presentation: It is diagnosed when the fetus is in the transverse lie and is associated with lax abdominal wall and

uterus in multiparous women. Other known associations include preterm, congenital fetal or uterine malformation, fibroid, placenta Previa and polyhydrominos. Diagnosis can be made with abdominal or vaginal examination. The incidence at term is 1 in 200. With the onset of labour, most cases of transverse lie convert to a longitudinal lie due to increased muscular tone of the uterus [1] Unless there is spontaneous conversion to vertex, shoulder presentation cases are delivered via caesarean section because of the increased risk of cord prolapse, uterine rupture [4]. Physiological changes of pregnancy cause the thyroid gland to increase production of thyroid hormones by 40 to 100 percent to meet maternal and fetal needs anatomically. Mean thyroid volume increased from 12 mL in the first trimester to 15 mL at delivery. Total volume was inversely proportional to serum thyrotropin concentrations. Such enlargement is not pathological, but normal pregnancy does not typically cause significant thyromegaly. Thus, any goiter should be investigated. Beginning early in the first trimester, levels of the principal carrier protein—thyroxine-binding globulin—increases, reaches its zenith at about 20 weeks. Total serum thyroxine (T4) increases sharply beginning between 6 and 9 weeks and reaches a plateau at 18 weeks. Free serum T4 levels rise slightly and peak along with HCG levels, and then they return to normal. The rise in total triiodothyronine (T3) is more pronounced up to 18 weeks, and thereafter, it plateaus. Thyroid-releasing hormone (TRH) levels are not increased during normal pregnancy, but this neurotransmitter does cross the placenta and may serve to stimulate the fetal pituitary to secrete, TSH level decreases and may even be low in some patient, 13% in the first trimester, 4.5% in the second trimester, and 1.2% in the third trimester

Thyroid disease is the most common pre-existing endocrine disorder in pregnant women [6]. In pregnancy, there is altered TBG production as a result of increased estrogen synthesis. The increase in TBG lead to increase in the serum concentration of total T4 and T3 but there are no change in amount of free (unbound) thyroid hormones. There is iodine deficiency in pregnancy as result of loss through increased glomerulofiltration. This result in increased uptake by thyroid which can result in enlargement and goiter appearance as human chorionic gonadotrophin (HCG) and TSH share a common alpha subunit and have similar beta subunit TSH receptors are prone to stimulation by HCG [6]. Hypothyroidism is found in around 1% of pregnant women. Worldwide, the commonest cause of hypothyroidism is iodine deficiency, where autoimmune Hashimoto, s thyroiditis is more common [7]. There is an established association between poorly controlled hypothyroidism and a variety of adverse outcome, including congenital abnormalities, hypertension, premature delivery, fetal growth restriction and postpartum hemorrhage [8]. Overt hypothyroidism also causes sub-fertility and the presence of thyroid auto-antibodies, even if the mother is euthyroid, is associated with an increased risk of miscarriage, association with placental abruption and premature delivery [9, 10]. Thyroid function should be assessed and the presence of circulating thyroid antibodies test to differentiate from autoimmune thyroiditis. Women diagnosed with hypothyroidism should continue full thyroid replacement during pregnancy and the biochemical euthyroid is the aim [7]. Hyperthyroidism affects 1 in 500 pregnant women, 90% of whom have, gravis disease. Other causes of hyperthyroidism (5-10 percent) include toxic adenoma, subacute thyroiditis and toxic multinodular goiter [7, 8]. Women with well treated disease rarely have maternal complications of pregnancy. The disease may remit during the

latter trimesters such that treatment may need to be reduced or stopped. In post-partum period the disease may flare and requires treatment with the same or higher doses of anti-thyroid medication [8]. Poorly controlled hyperthyroidism is associated with several pregnancy complications including: maternal thyrotoxic crises, miscarriage, gestational hypertension, preeclampsia and intrauterine growth restriction [10]. Approximately 50% of patients with Gravis' disease also develop clinically evident ophthalmopathy [11]. The principal drugs used to treat hyperthyroidism (propylthiouracil and carbimazole) inhibit thyroid hormone synthesis [8]. There is no evidence of either drug is associated with congenital abnormalities. Both drugs may rarely cause neutropenia and agranulocytosis, both crosses the placenta. However, fetal hypothyroidism rarely seen. About 1% of pregnant women with a history of Gravis' disease give birth to children with a thyrotoxicosis due to transplacental transfer of thyroid-stimulating antibodies. It is transient and lasts less than 2 to 3 months but it is associated with a neonatal mortality rate of about 16% [12].

#### Aim of study

To assess a possible relationship between maternal thyroid function disturbance during gestation with abnormal fetal presentation at term with its consequence on fetal and maternal health through identification of obstetrical complications.

#### Patients and methods

Across-section hospital based study was carried from October 2013 to July 2014, a 100 pregnant women who living in Tikrit and Al-Fallujah cities after taking their consent were enrolled in the study.

Randomized sampling technique was done by selection the study population from all attendance to obstetrical unit of Tikrit and Al-Fallujah teaching hospital. With age ranging from 19-45 years old and mean of (28.5). the study exclude through the history, clinical and ultrasonic examination the pregnant women who present with maternal causes of malpresentation as in uterine abnormality (bicornuate uterus), pelvic abnormality (as previous trauma patient), pelvic masses (such as cervical fibromatoma, ovarian cysts and tumors), placental abnormality as placenta praevia; exclusion of multiple pregnancies; oligo- or polyhydramnios. The study exclude fetal causes of malpresentation such as hydrocephaly, anencephaly; intra uterine growth restriction, premature fetus. All cases were admitted to labour ward, full medical and obstetrical history was taken, clinical and obstetrical ultrasonic examination undergone for all cases to identify the type of fetal presentation and define the exclusion criteria. Women with overt hyperthyroidism (through history and clinical examination) were (7) and those with overt hypothyroidism were (2), both groups were sent for surgical consultation with advices of treatment and stabilization of their conditions and they were included in the study. A five ml of blood sample was taken from all cases at term, the sample then sent for thyroid parameters analysis (T3,T4,TSH).The sample tested through Ria Method (the sample centrifuged to form 2.5ml serum send for Gama counter)which considered a normal level of T3,T4,TSH; 0.55-3.91 nmol/L, 55-170 nmol/L,

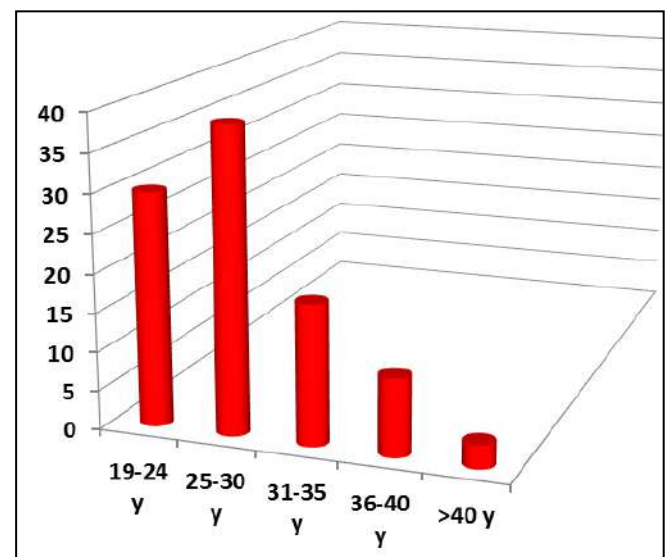
0.27-3.75mU/L respectively. The study considered the pregnant women who were normal thyroid parameters as norm al thyroxinaemia, while those with high level of T3,T4(above normal),TSH level low (below normal) as hyperthyroxinaemia and those with low level of T3,T4(below normal),TSH level above normal considered as hypothyroxinaemia regardless of the clinical thyroid status. During the follow up of delivery, (56) cases were delivered vaginally and discharge to home when their health became stable, (44) cases delivered by c.s. under general anesthesia and admitted to gynecological ward and discharge to home after their health became stable.

#### Results

The study classified the cases according to the age in to 5 age groups that showing in table (1).

**Table 1:** Distribution of the cases according age group

Age group	Cases No.	%
19-24	30	30
25-30	39	39
31-35	18	18
36-40	10	10
40 >	3	3



**Fig 1:** Distribution of cases according to age groups

The study classified the cases according to fetal presentation in to 5 groups that showing in table (2).

**Table 2:** The Classification of Cases According to Fetal Presentation

Fetal presentation	Cases No.	%
Cephalic	50	50
Breech	35	35
Shoulder	10	10
Face	4	4
Brow	1	1

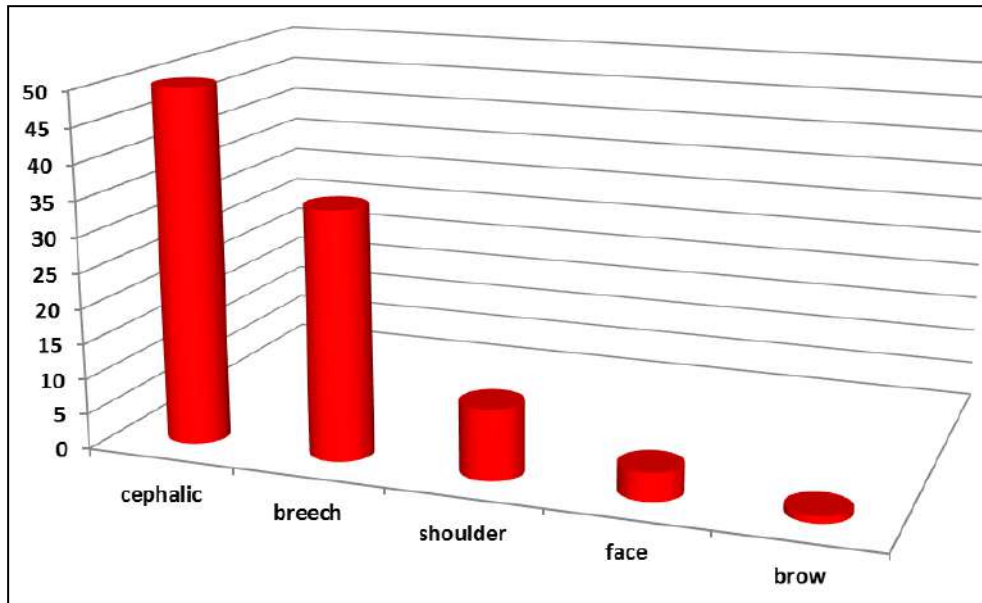


Fig 2: classification of cases according to fetal presentation

The study divided the cases according to thyroid hormonal status into 3 classes:

**Class I:** cases with normal thyroxinaemia, their number was (83) cases with 83%.

**Class II:** cases with hyperthyroxinaemia, their number was (8) cases with 8%.

**Class III:** cases with hypothyroxinaemia, their number was (9) cases with 9%.

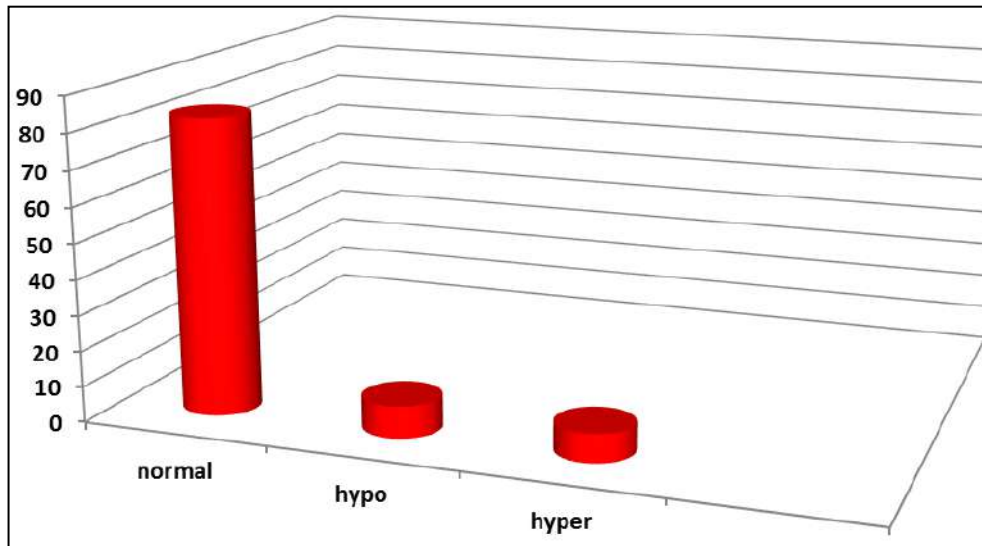


Fig 3: classification of cases according to thyroid status

The study subdivided the fetal presentation groups according to thyroid hormonal status into:

Group A: the cases who cephalic presented were (50) cases; in whom (44) cases (88%) were normal thyroxinaemia; (4) cases (8%) were hyperthyroxinaemia; (2) cases (4%) were hypothyroxinemia.

Table 3: classification of cephalic presentation (group A) according to thyroid hormonal status

Thyroid status	Cases No.	%
Hypo thyroxin	2	4
Hyper thyroxin	4	8
Normal	44	88

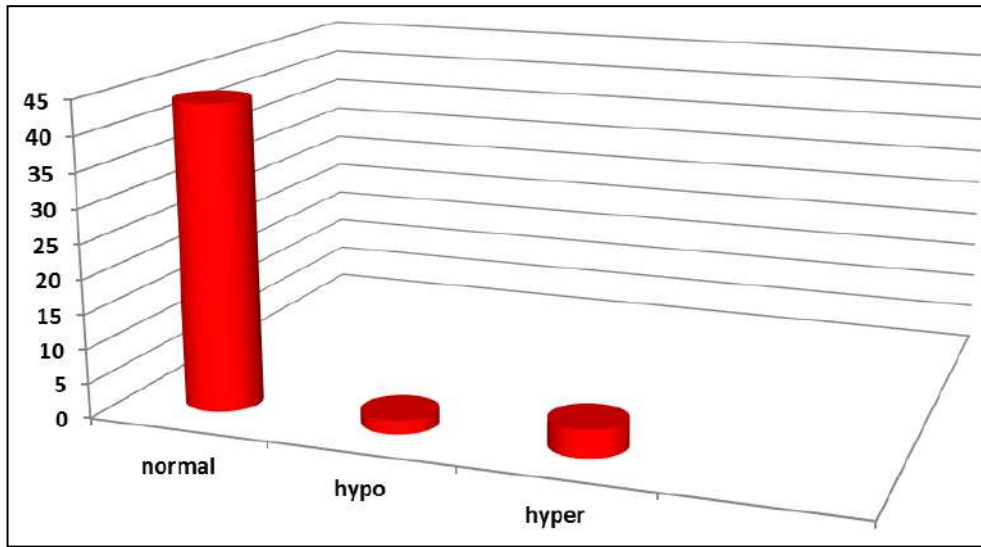


Fig 4: classification of cephalic cases according to thyroid status

Table 4: Distribution of group a cases according to mode of delivery

Mode of delivery	Cases No.	%
Vaginal	43	86
C.S.	7	14

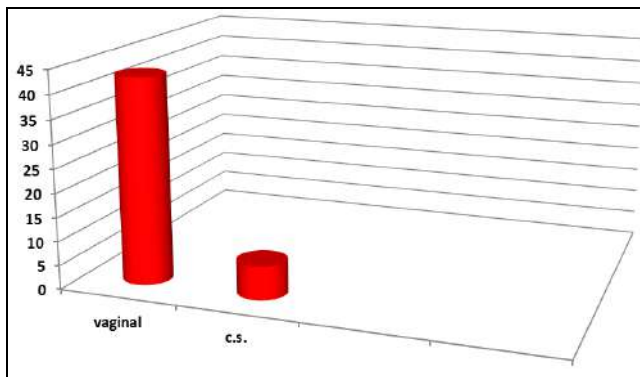


Fig 5: Show distribution of cephalic cases according to mode of delivery

Table 5: classification of group B according to thyroid hormone status:

Thyroid status	Cases No.	%
Hypo thyroxin	6	17.142
Hyper thyroxin	3	8.571
Normal	26	74.285

Significant difference between both groups as (P Value=0.005)

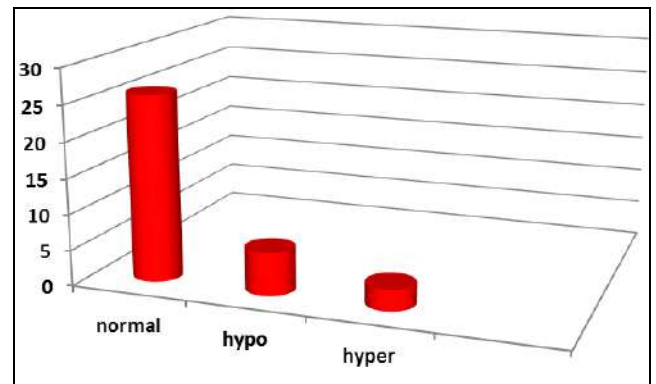


Fig 6: Classification of breech cases according to thyroid status

Group B: the cases who breech presentation were (35); in whom (26) cases (74.285%) were normal thyroxinaemia while (6) cases (17.142%) were Hypothyroxinaemia and (3) cases (8.571%) were Hyerthyroxinaemia.

Table 6: Distribution of group B according to mode of delivery

Mode of delivery	Cases No.	%
Vaginal	11	31.428
C.S.	24	68.571

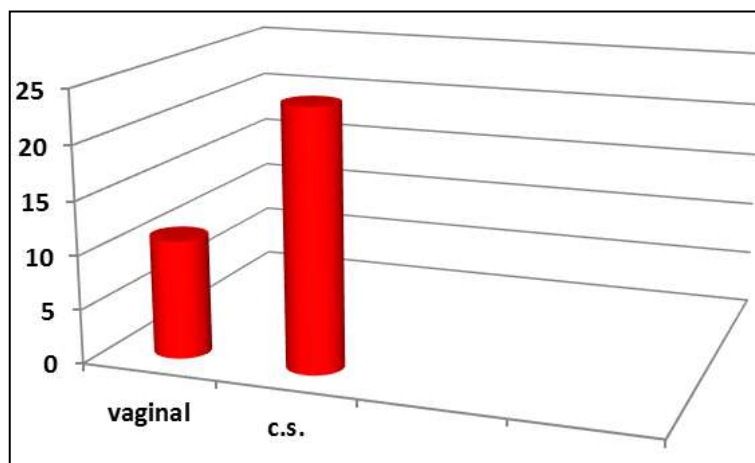


Fig 7: Distribution of breech cases according to mode of delivery

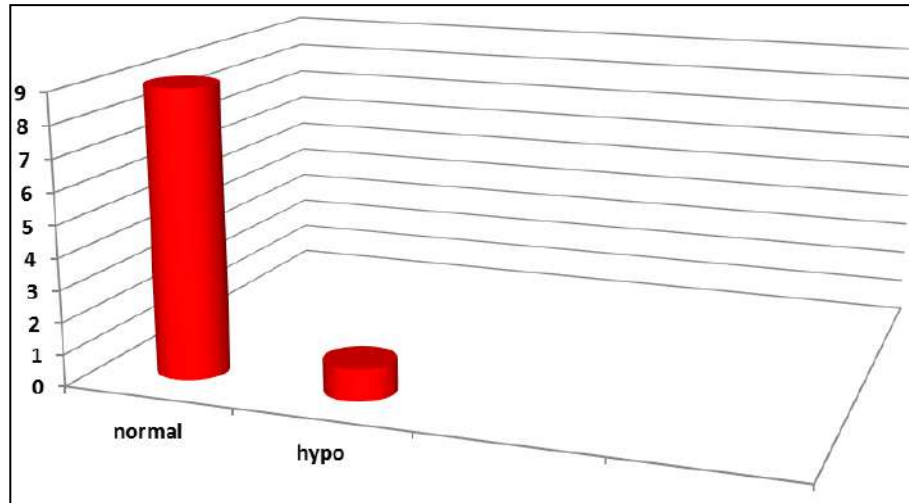
Group C: the cases who shoulder presentation were (10) cases; one case was hypothyroxinemia (10%); other (9) cases were normal thyroxinaemia (90%); there were no

hyperthyroxinaemic cases. All cases were delivered by caesarean section.

**Table 7:** classification of group C according to thyroid hormone status

Thyroid status	Cases No.	%
Hypo thyroxin	1	10
Hyper thyroxin	Zero	0
Normal	9	90

Without statistically significance (P Value=0.03)



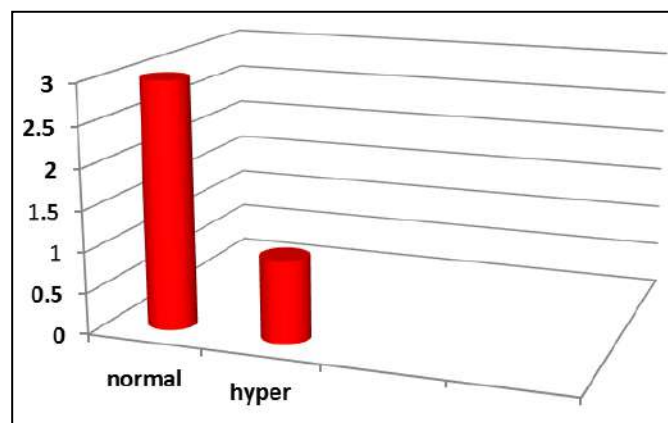
**Fig 8:** Classification of Shoulder Presentation Cases According to Thyroid Status

Group D: the cases who face presentation were (4) cases; in whom (3) cases (75%) were normal thyroid hormone; one case

was hyperthyroxinaemia (25%).

**Table 8:** classification of group D according to thyroid hormone status:

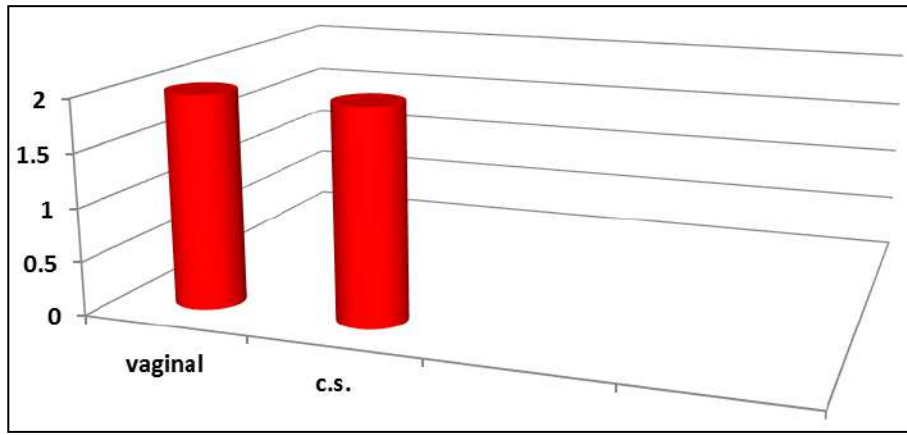
Thyroid status	Cases No.	%
Hypo thyroxin	Zero	0
Hyper thyroxin	1	25
Normal	3	75



**Fig 9:** classification of face presentation cases according to thyroid status

**Table 9:** Distribution of group D according to mode of delivery

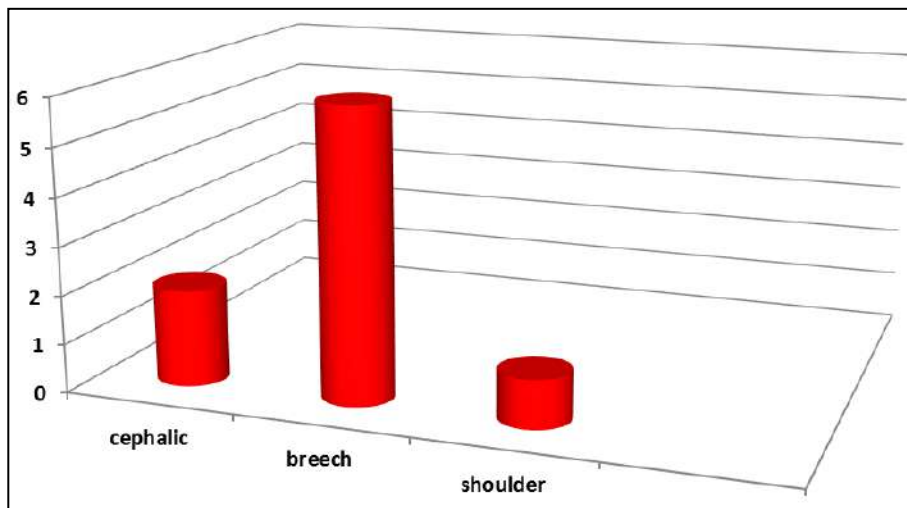
Mode of delivery	Cases No.	%
Vaginal	2	50
C.S.	2	50



**Fig 10:** Distribution of face presentation cases according to mode of delivery

GoupE: one case presented as brow, she was normal thyroid hormone and was delivered by c.s.  
 The study identify the types of fetal presentation whose suffered from maternal thyroid hormones disturbance as following: cases who cephalic presented with hypothyroxinemia (class III) were 2 cases (2%) from total number of cases (22.222% of

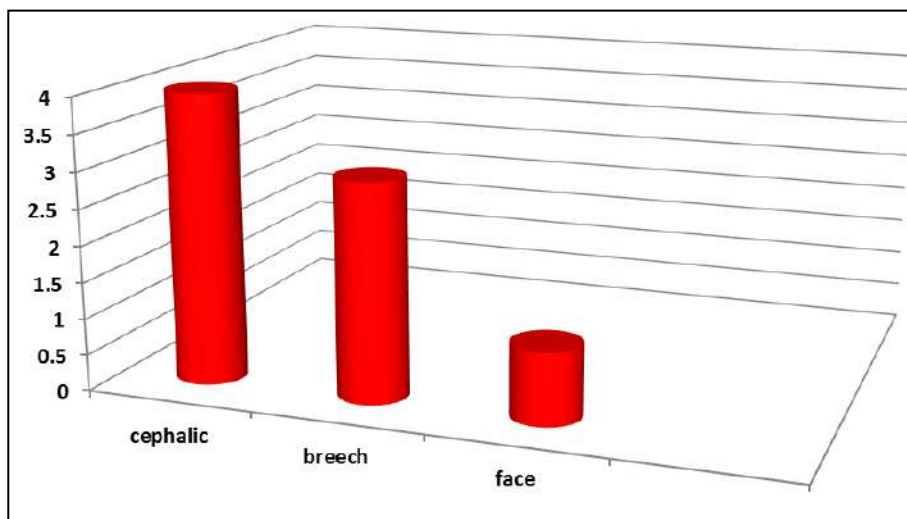
hypothyroxinaemic cases) while those presented as breech with hypothyroxinemia were (6)cases (6%) of all cases of the study (66.666% of hypothyroxinaemic cases), one case was shoulder presentation associated with hypothyroxinemia (1%) of the all cases (11.111% of hypothyroxinaemic cases).



**Fig 11:** Distribution of hypothyroxinaemic cases according to type of presentation

Cases who cephalic presented with hyperthyroxinaemia (class II) were (4) cases (4%) of all cases (50%); those with breech

presentation were (3) cases (3%) of all cases (37.5%);one case (1%) was face presentation (12.5%)



**Fig 12:** Distribution of hyperthyroxinaemic cases according to type of presentation

## Discussion

Thyroid hormone is an important factor in development of fetal central nervous system<sup>[13]</sup> with maternal fetal transfer of thyroxin account for up to 50% of fetal serum thyroxin level at term, therefore the possibility of maternal thyroid status affect fetal mobility and future psychomotor development is well defined, today several studies have shown that even subtle maternal thyroid problems (e.g. elevated TSH or lower free thyroid hormone or elevated thyroid peroxidase Antibody titers) are associated with abnormal fetal position and presentation during late gestation and at birth<sup>[14]</sup>. A population –based cohort study from Finland recently demonstrated that non cephalic presentation at birth was more common among thyroid globulin antibody positive mothers<sup>[15]</sup>. Motor skill in children with congenital hypothyroidism were reported to be significantly worse in children with high TSH or low T3, T4 values mothers on newborn screening compared to those with normal TSHT3, T4<sup>[15]</sup>. Suboptimal maternal thyroid hormone supply has been also related to neonatal motor deficit. Since breech presentation has also been linked to motor impairment, one may suggest that – if suboptimal maternal thyroid function is related to breech – the neonatal consequences of breech presentation could be explained via thyroid hormone pathway. In the Netherlands, vaginal delivery in case of breech presentation used to be common practice; roughly 25% of all term breeches were delivered by planned c.s., 25% by c.s. after a trial of labour and 50% were delivered vaginally. After publication of one randomized trial – Term Breech Trial – in 2000 a dramatic policy change occurred. In this study it was concluded that planned c.s. was better than planned vaginal birth for term breech fetus while serious maternal complications were similar between both birth groups.<sup>[16]</sup> Within 2 months following publication of the term breech trial, the total c.s. rate increase from 50-80% as a direct result of an increase in elective c.s. International guidelines of Netherlands at 2001 concluded that planned vaginal delivery of a term single breech may no longer be appropriate and external cephalic version should be attempted whenever possible. Overt maternal hypothyroidism is documented as being related to obstetric complication.<sup>[16]</sup> However, it is a rare condition in childbearing women. Moreover because hypothyroidism often is associated with fertility problems (due to anovulation), most women with overt hypothyroidism only become pregnant after adequate substitution with thyroid hormone. Most women – at least in iodine supplemented areas – who present with overt hypothyroidism during pregnancy have been inadequately treated (inadequate substitution of thyroid hormone in those with previous hypothyroidism, with anti-thyroid drugs in those who were suffering from hyperthyroidism) have been suffering from obstetric complication as in fetal malpresentation, the mechanism that could explain the association between maternal hypothyroxinaemia and an increased rate of breech deliveries still remain to be explained. However, it could be hypothesized that adequate fetal movement is important for reaching a cephalic position, moreover it could also be hypothesized that adequate fetal movement interferes with the development of a long enough umbilical cord, which when it is too short, has been associated with an increased rate of breech presentation. It has been suggested that maternal hypothyroxinaemia might be related to inadequate intake of iodine during pregnancy. However our current study is carried out in an area of general population has an adequate iodine supplement. Several limitations during the current study need to be mentioned. Firstly, the rather low number of women whose suffered from thyroid hormone abnormalities undergoing malpresentation as

breech deliveries. Because statistically significant differences were found in rather small number as in present study, larger studies with more historical detailed data, more advanced thyroid investigations such determination of anti- thyroid peroxidase antibodies are needed in order to define and confirm the association between maternal thyroid disturbance and fetal malpresentation, and then can interventional trial with anti-thyroid drugs or thyroxin replacement possibly be considered. Secondly, after taking a large number of cases participate in the study, only 100 case agree for blood sampling and consent to share in the study, preferentially, the relation between thyroid disease and fetal malpresentation should be investigated in a large open pregnant population in which T3,T4,TSH are equally assessed at different times during gestation. In current study (50) cases (50%) were cephalic presentation, other (50) cases (50%) were fetal malpresentation (35% breech, 10% shoulder, 4% face, 1% brow presentation). The study show a (17.142%) of breech mal presentations (6% of total cases) were associated with maternal hypothyroxinaemia while (8.571%) of breech malpresentation fetuses suffered from maternal hyperthyroxinaemia (3% of total cases) with significant difference between both groups as (P value = 0.005). The study show (10%) of shoulder mal presentations were associated with maternal hypothyroxinaemia, without statistically significance because it resembles only (1%) of total cases of the study and as (P value = 0.03). The study show (25%) of face mal presentations associated with maternal hyperthyroxinaemia, also without statistically significances as it resembles (1%) of total cases (P value = 0.027). In a prospective follow up randomized study throughout pregnancy in healthy Dutch Caucasian pregnant women, was performed from 12 weeks gestation onwards until term (37 weeks and more) delivery. This study was done between January 1997 and April 1998, in which (1361) pregnant women consented to participate in the study who living in and around the city of Eindhoven, the Netherlands, were invited at their first antenatal control with a community midwife<sup>[17]</sup>. The study was approved by the Medical Ethical committee of Maxima Medical Centre Eindhoven, the Netherlands, excluded overt clinically hypo – or hyperthyroidism. It show the percent of women with subclinical hypothyroidism at term that presented as breech was (5.5%) that had significantly higher TSH (P value = 0.004) compared to (4.8%), (P value = 0.006) in the women with level TSH, and conclusion of pregnant women who had high TSH level at end of gestation were at risk for breech presentation and as such for obstetric complication. The study did not mention the other group of cases, whether having other type of malpresentation apart of breech malpresentation. In other study which was made in the South-East of the Netherlands, two samples of pregnant women were taken; the first sample comprises of (1058) pregnant women who were recruited between 2002 -2004 for follow up study in which maternal thyroid status was assessed at 12, 24 and 36 gestational week<sup>[17]</sup>. Fetal position was assessed by ultrasound between 35 -38 weeks of gestation. The 2<sup>nd</sup> sample comprises (161) pregnant women who, between 2007-2009, presented in breech at an obstetric clinic for an external cephalic version attempt. In both samples women with twin pregnancies, on thyroid hormone replacement therapy, those with known auto – immune disorder such as diabetes mellitus were excluded, as well as women with preterm birth. The study was approved by the Medical Ethical committee of Catharina Hospital Eindhoven, the Netherlands. Thyroid hormones, TSH and thyroid peroxidase antibodies assessed in the 2<sup>nd</sup> sample just before the external cephalic version near 35 weeks of gestation. The breech presentation associated with high level of TSH was



(11%) in first sample while in the 2nd sample was (6%) breech presentation with high TSH level but still lower than in first sample, both samples women (with breech presentation) had significantly higher TSH level compared with those who presented in cephalic presentation (P value =0.003) while no significant difference between the two samples as (P value = 0.62). The explanation for this relationship between breech malpresentation and high level of maternal TSH was delayed fetal neural maturation processes that involved in change of fetal position, with other possible explanation, fetus in breech presentation show different sensory experiences compared to those presenting in cephalic presentation [18]. With regard to neonatal maturation, breech babies tend to be smaller, have lower score on neurological tests and are balanced- impaired until the age of (12-18) months. A large cohort study reported a significant IQ delay in 20 years old men born in breech compared to men born in cephalic presentation [18]. In conclusion, the study strongly suggests a relationship between high maternal TSH level and fetal breech presentation at term. It also suggests that neurodevelopment delay, which has been related to breech presentation might in fact reflect sub-optimal maternal thyroid function during gestation. Women with hyperthyroidism or those who are treated with medication for thyroid disease during pregnancy are at increased risk of having fetus with a goiter and when assessing the fetal thyroid, many sonographers rely on a subjective impression of increased thyroid size that lead to increased fetal head extension and abnormal fetal presentation. In a study which was made and approved by the Institutional Review Board at Saint Peter's University Hospital, University of Medicine and Dentistry of New Jersey, a (200) fetuses were evaluated between (16-37) gestation weeks ultrasonographically. Fourteen cases had a history of maternal hyperthyroidism on medical treatment including propylthiouracil with antenatal thyroid hormones assessment as 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> trimesters; suffering from goiter which may occur as direct effect of high level of maternal thyroxin, or may also occur due to fetal hyperthyroidism from Trans placental passage of maternal thyroid stimulating immunoglobulins, or fetal hypothyroidism as direct trans placental passage of maternal thyroid peroxidase antibodies or as a direct effect of anti-thyroid drugs on the fetus. Those fetuses suffered from neck hyper extension resulting in malpresentation at delivery with neonatal tracheal compression. The study did not mention or concentrated about the type of malpresentation and did not confirm the relationship between fetal malpresentation and elevated maternal thyroid hormones. This study concentrated on thyroid size assessment through both biparietal diameter and gestational age as good predictors of fetal thyroid circumference measurement during pregnancy and in utero testing for determine whether thyroid dysfunction was present and successful in utero treatment for both hypo- and hyperthyroidism During the last decade, in western societies, a general idea has generated which questions whether thyroid parameters (TSH,T3,T4 and TPO-Ab) should be screened in all pregnant women. The association between elevated concentration of TPO-Ab and an increased rate of abortion, the high correlation between elevated TPO-Ab and development of postpartum thyroiditis, the relationship between maternal hypothyroxinemia and impaired infant development are all arguments. (5-7%) of general pregnant population, screening for thyroid hormonal disturbance would be easy to implemented.

### Conclusion

About 11% of Pregnant women in the study were suffered from malpresentation associated with abnormal thyroid status during

gestation (which reflected by high or low thyroid hormones level regardless of clinical thyroid status). Most of malpresentation was breech (35% of the study) with more fetal, maternal and obstetrical complications with increase the possibility of difficult and complicated vaginal delivery, increase caesarean section rate with it is complication. Most of malpresented pregnant women were delivered by C.S. (37% of the study)

### Recommendation

For establish thyroid function test with routine investigations for antenatal care. Pregnant women with previous history of thyroid disease advices for constricted thyroid function control through iodine, thyroxin and anti-thyroid medical treatment, follow up by T3,T4 and TSH levels throughout the gestation period. Regular antenatal monitoring and assessment of fetal movement, with a trial of external cephalic version for persistent malpresentation is necessary. Since breech presentation is associated with neonatal as well as maternal morbidity and mortality, more study is required to make ideal preventive methods to minimized it,s effect on fetal health and maternal health.

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