

Change level of TRAb in newborn leads to thyroid dysfunction - case report

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The authors have nothing to disclose.



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Background

Maternal new-diagnosed Graves' disease is quite rare thyroid dysfunction with an estimated incidence of 0.4%-1% of all pregnancies, but only 1-5% of newborns delivered to mothers with Graves' disease develop overt clinical signs and symptoms of hyperthyroidism. Neonatal hyperthyroidism almost always is transient and results from the transplacental passage of maternal thyrotropin (TSH) receptor stimulating antibodies. Neonates born to mothers with Graves' disease are at risk for significant morbidity and mortality and need to be appropriately identified and managed.



Mother with Graves' disease

Case report

We present the case of 1-month-old baby, who was diagnosed by hypothyroidism during first week of his life, and after that we observed clinical signs and symptoms of hyperthyroidism.

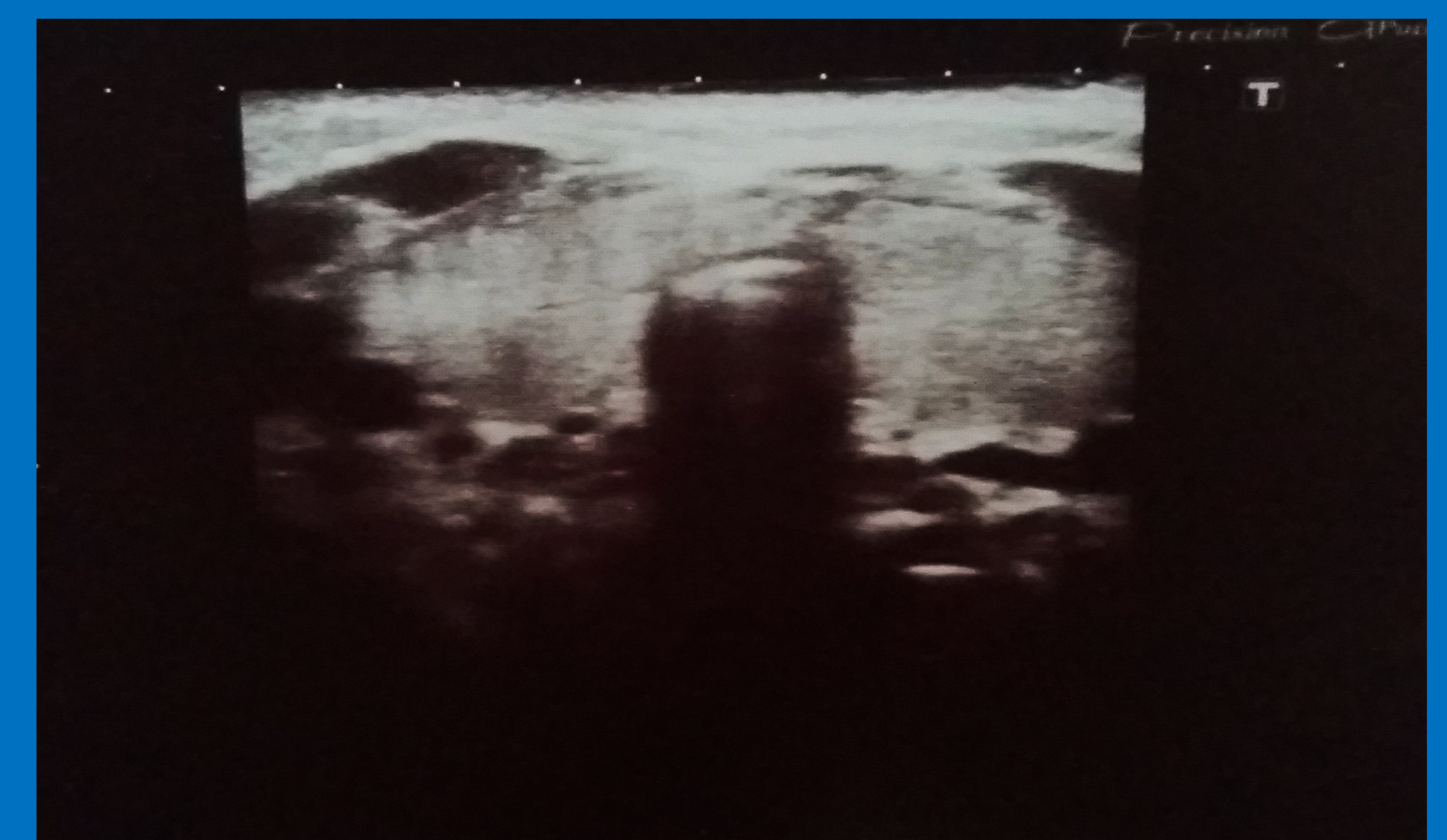
A 3350-gram male neonate in a good condition was born at term to a mother with Graves' disease first diagnosed at 13-week gestation. Pregnant woman had high level of TRAb and she was treated with methimazole (MMI) and beta-blockers, obtained euthyroid. During first days in newborn we observed increased level TSH in serum (30.47 uIU/ml) and normal level of fT4 (0.73 ng/ml) and elevated TRAb (30.36 IU/l), so positive level of TSH- receptor antibodies regarded the newborn as "at risk" for the development of hyperthyroidism. Development of hypothyroidism was the effect of using antithyroid drugs (ATDs) in his mother.



Baby with thyroid dysfunction

Results

We followed up the baby and we observed changes levels of thyroid hormones and increased serum TRAb. A 8- day- old male had tachycardia without any other physical signs of thyrotoxicosis. TSH- 0.05 uIU/ml; fT3- 13.21 pg/ml; fT4- 7.79 IU/l; TRAb- 33.17 IU/l. Because of development of hyperthyroidism we used methimazole (MMI) as the treatment of choice; beta-blockers can be added for sympathetic hyperactivity. A 1-month-old baby taking ATDs became euthyroid without significant side effects and we observed decreased level of TRAb (26.14).



Thyroid gland in newborn

	5- day- old baby	8- day- old baby	1- month- old baby	2- month- old baby	3- month- old baby
TSH (μIU/ml)	30.47 (↑)	0.05 (↓)	8.14 (N)	3.49 (N)	1.85 (N)
fT4 (ng/ml)	0.73 (N)	7.79 (↑)	1.06 (N)	1.64 (N)	1,28 (N)
fT3 (pg/ml)		13.21 (↑)	3.88 (N)		
TRAb (IU/l) (N: < 1.75)	30.36 (↑)	33.17 (↑)	26.14 (↑)	13 (↑)	6.53(↑)
Treatment in baby	(-)	MMI + beta-blockers	MMI	MMI	MMI

Summary

- 1). Testing for TSH receptor antibodies is useful in pregnant women with Graves' disease to determine the risk of neonatal thyroid dysfunction due to transplacental passage of stimulating or blocking antibodies.
- 2). Tachycardia in newborn from mother with Graves' usually is a first sign of thyrotoxicosis.
- 3). Rapid fT4 elevation during the first postnatal week is predictive of hyperthyroidism and warrants ATD therapy.