



Hydrops Fetalis in the first trimester – Is the etiology same ?

Mishu Mangla, Naina Kumar

All India Institute of Medical Sciences, Bibinagar, Hyderabad

ABSTRACT

Although fetal hydrops in the first trimester ultrasound is rare, it has been found to have an even stronger association with adverse outcomes than increased Nuchal translucency. The present systematic review of all cases published as first trimester hydrops was conducted on an assumption that the causes of hydrops are different in the first trimester than in late pregnancy. Authors through the present article aimed to compile the available literature regarding early hydrops and find out whether the etio-pathology and clinical outcome is same as late hydrops or different.

CONTACT

Dr. Mishu Mangla
All India Institute of Medical Sciences,
Bibinagar, Hyderabad - 508126
Email: mishusingla83@gmail.com
Phone: +919493980850

INTRODUCTION

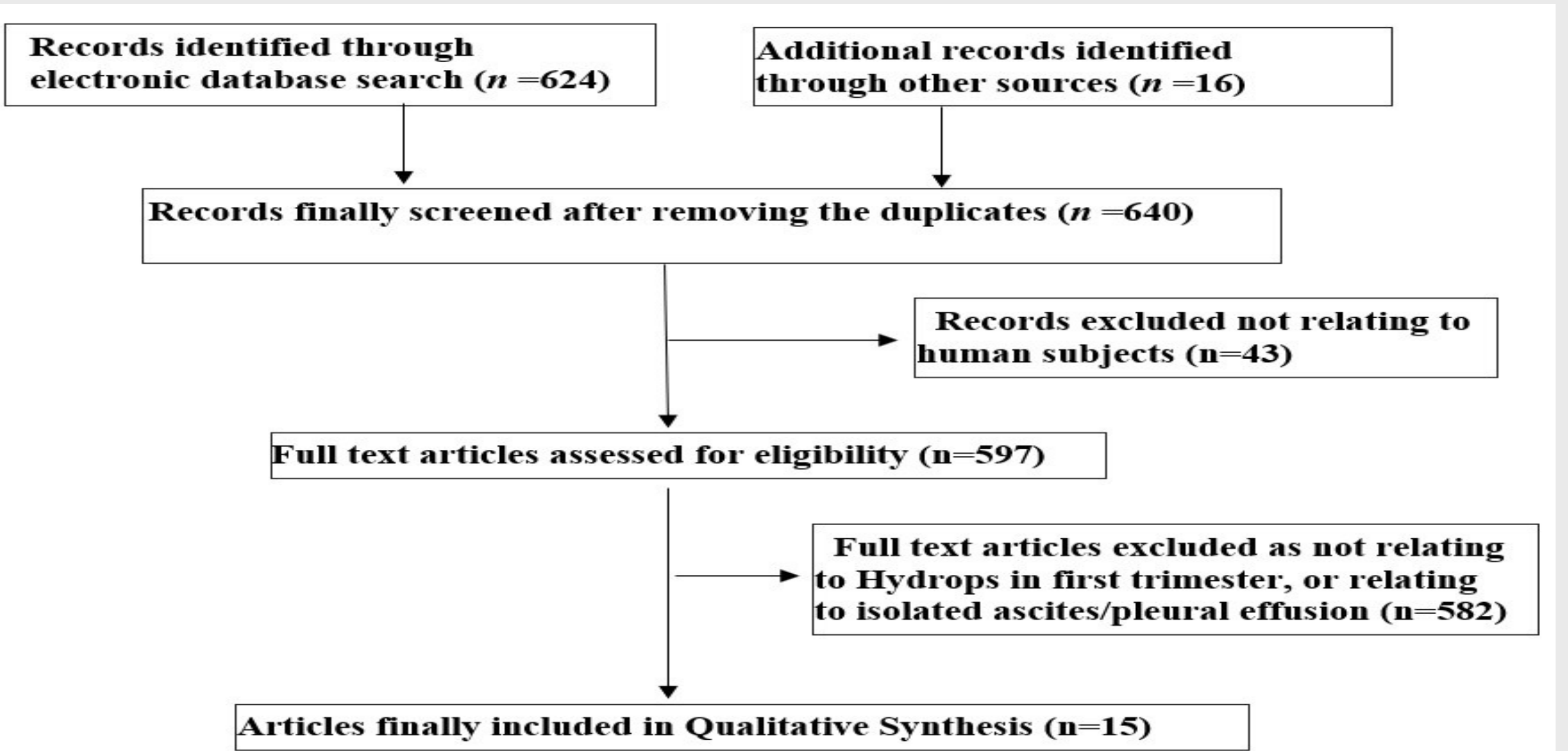
- Hydrops fetalis is diagnosed by sonographic detection of two or more abnormal fetal fluid collections.
- Data on 1st trimester Hydrops is limited in the form of case reports and short case series only.
- Objective was to compile the available literature regarding early Hydrops and determine whether the etio-pathology and clinical outcome are the same as late Hydrops or different.

METHODS AND MATERIALS

- A systematic review (PRISMA guidelines).
- Databases - Pubmed, EMBASE, Scopus, and Google scholar
- Keywords - ‘Early hydrops’ or ‘first-trimester hydrops’ or ‘Embryonic hydrops’.
- INCLUSION CRITERIA - Case reports, short case series, or original articles on fetal Hydrops in the 1st trimester, Cases with generalized skin edema with increased NT were included.
- EXCLUSION CRITERIA - Hydrops in the 2nd or 3rd trimester, isolated pleural effusion, pericardial effusion or ascites.

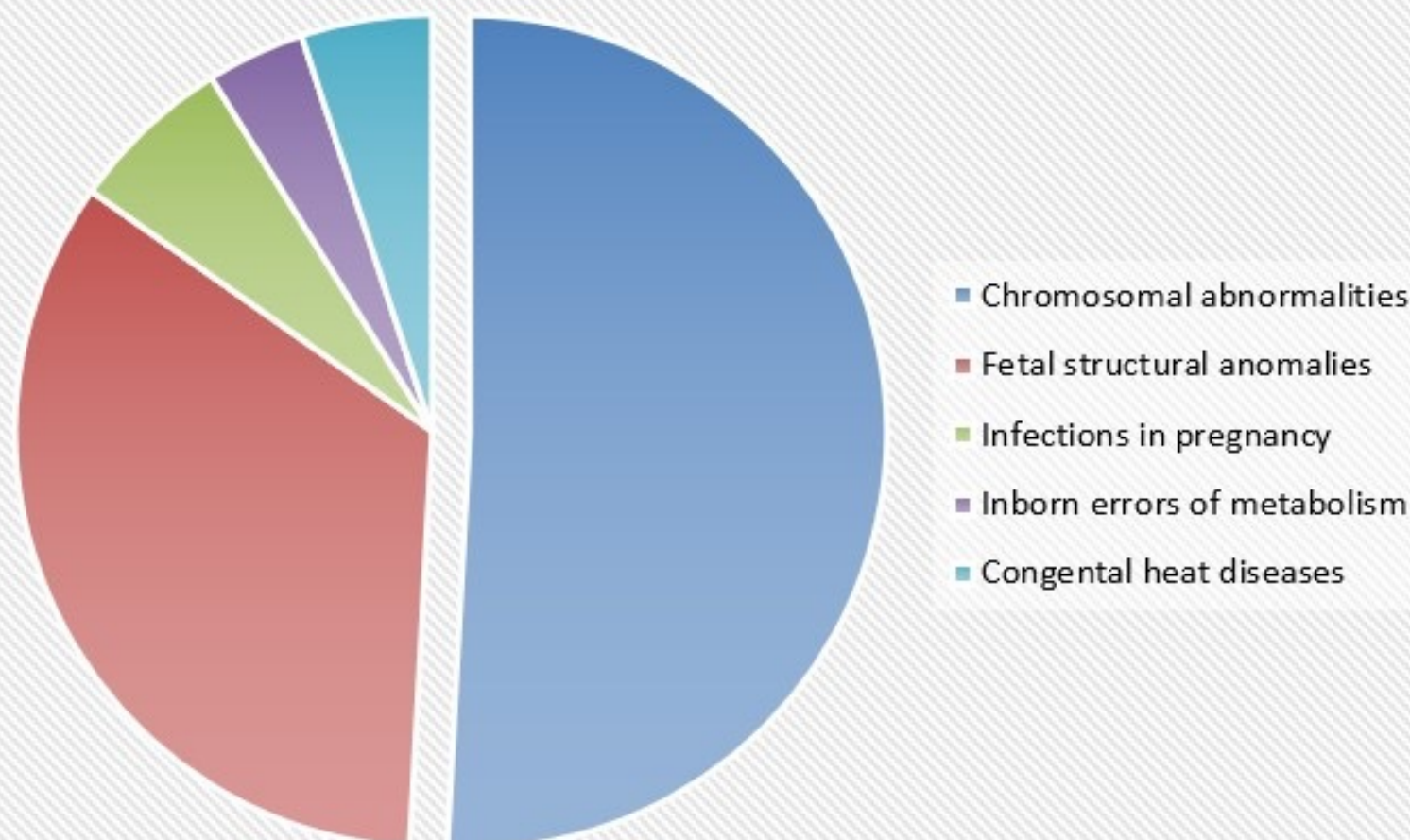
RESULTS

- Mean GA at diagnosis - 12 weeks (10.5 to 14.1 week).
- 73 singleton, 2 cases of twin gestations
- MC cause of Hydrops in 1st trimester Chromosomal abnormality (53.4%)
- 2nd MC structural abnormality of fetus accounting for 35.6%.

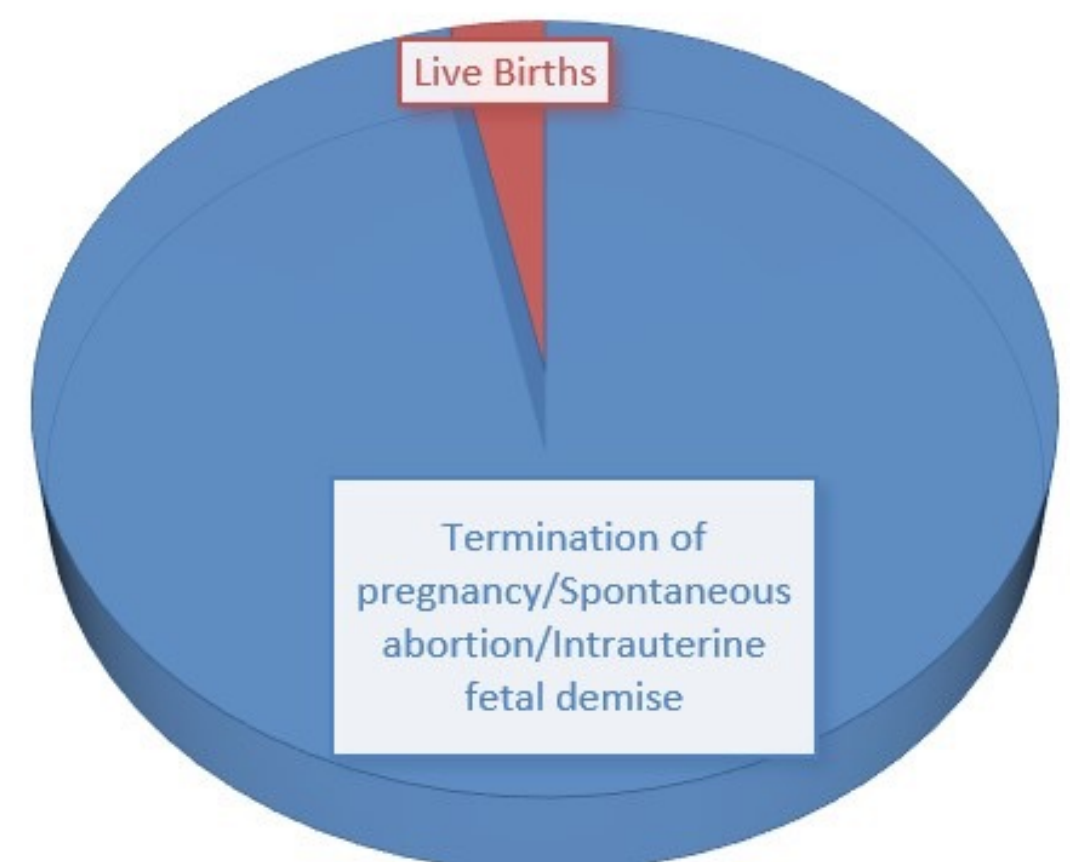


S. No	Number of cases	Mean GA at diagnosis	Singleton/ Twins	Incidence of Chromosomal abnormality	Cause of Hydrops	Recurrence or not	Outcome of pregnancy	Reference
1	30	11.8	Singleton-28 Twins -1	86.7	Chromosomal abnormality	No	TOP- 27 Abortion at 14.8 weeks, Abortion at 20.4 weeks	Shulman et al [6]
2	1	10.5	Singleton	0	SARS-CoV	No	TOP at 13 weeks	Shende P et al [17]
3	1	11.6	Twin	0	Cystic thoracic lesion	No	Normal	Jauniaux et al [5]
4	1	12.9	Singleton	0	Parvovirus	No	Fetal demise at 15 weeks	Smulian et al [18]
5	1	11	Singleton	0	Thanatophoric dysplasia	No	TOP at 20 weeks	Calongos et al [26]
6	1	12.5	Singleton	0	Parvovirus	No	Normal delivery at term	Petrivosky et al [27]
7	1	12	Singleton	0	Parvovirus	No	Normal delivery at term	Petrivosky et al [27]
8	1	12.5	Singleton	0	Parvovirus	No	Normal delivery at term	Petrivosky et al [27]
9	1	11.4	Singleton	0	Complete AV canal defect	No	Not mentioned	Baschat et al [28]
10	1	12.4	Singleton	0	Complete heart block, AV canal defect	No	Abortion	Baschat et al [28]
11	1	14.1	Singleton	0	DORV, complete heart block	No	Not mentioned	Baschat et al [28]
12	1	11.5	Singleton	0	TGA, Dextrocardia	No	Not mentioned	Baschat et al [28]
13	3	13	Singleton	0	beta-glucuronidase deficiency	YES	Fetal demise	Dorpe JV [29]
14	1	14	Singleton	0	Hb Bart's disease	YES	TOP	Yang [30]
15	30	12	Singleton	47.3	structural abnormalities- 83.3%, chromosomal abnormalities - 47.3%	No	All cases resulted in IUD, TOP	Has R [31]

Causes of Hydrops in 1st Trimester:



PREGNANCY OUTCOMES



DISCUSSION

- NIHF is just a clinical sign of some underlying pathology and not a disease in itself
- In the 2nd and 3rd trimesters, hypervolemia is the leading cause of Hydrops, whereas, in the 1st trimester, the leading cause is CHF

CONCLUSIONS

- Patients should be counselled regarding the poor prognosis of early onset hydrops fetalis so that they can make an informed decision regarding pregnancy continuation

REFERENCES

- Fontanella F, Maggio L, Verheij JBGM, Duin LK, Adama Van Scheltema PN, Cohen-Overbeek TE, Pajkrt E, Bekker M, Willekes C, Bax CJ, Gracchi V, Oepkes D, Bilardo CM. Fetal megacystis: a lot more than LUTO. Ultrasound Obstet Gynecol. 2019 Jun;53(6):779-787. doi: 10.1002/uog.19182. PMID: 30043466; PMCID: PMC6593717.
- Jauniaux E, Nicolaides KH. Early ultrasound diagnosis and follow-up of molar pregnancies. Ultrasound Obstet Gynecol. 1997 Jan;9(1):17-21. doi: 10.1046/j.1469-0705.1997.09010017.x. PMID: 9060124.
- Jauniaux E, Brown R, Snijders RJ, Noble P, Nicolaides KH. Early prenatal diagnosis of triploidy. Am J Obstet Gynecol. 1997 Mar;176(3):550-4. doi: 10.1016/s0002-9378(97)70546-5. PMID: 9077605.
- Shulman LP, Phillips OP, Emerson DS, Felker RE, Tharapel AT. Fetal 'space-suit' hydrops in the first trimester: differentiating risk for chromosome abnormalities by delineating characteristics of nuchal translucency. Prenat Diagn. 2000 Jan;20(1):30-2. PMID: 10701847.
- Iskaros J, Jauniaux E, Rodeck C. Outcome of nonimmune hydrops fetalis diagnosed during the first half of pregnancy. Obstet Gynecol. 1997 Sep;90(3):321-5. doi: 10.1016/s0029-7844(97)00290-1. PMID: 9277637.