

Acute And Chronic Polyhydramnios

Case Report:

CASE I

Reg: No. 1012A: N.S.Y. Chinese. Age 25 years SN/3290/56/AN Primigravida.

History:

- (1) L.M.P. = 18.2.56
E.D.D. = 25.11.56
- (2) Morning sickness was experienced in the first trimester.
- (3) First seen at Antental Clinic on 26.4.56. (9th week), with symptoms of morning sickness. Fundus was found to be 3 fingers breadth above pubic symphysis.
- (4) On 5.6.56 (15th week) no complaint, fundus was 7" above pubic symphysis.
- (5) On 13.7.56 (about 19½ weeks) complained of gradually increasing abdominal pain in the last 4 days, constantly present. She was admitted on the same day for treatment.

Clinical Examination:

B.P. = 116/76
P.R. = 78/min.
Temp. = 99.4F.
Moderate amount of oedema of both legs.
Heart—Systolic murmur in the mitral area.
Lungs—Clear.
Abdomen: uterus size of full term, no contractions felt.
F.P.N.F., F.H.N.H.
No albumin in the urine.
P.V. findings: cervix partially effaced, os admits tip of finger, no internal ballottement elicited.

Clinical Diagnosis:

Acute polyhydramnios.

Progress Notes:

(1) 13.7.56 — 4.20 p.m.
Amniotomy—high rupture—was done and about 3 pints of clear straw-coloured fluid was withdrawn. Penicillin I.M. was instituted.

- (2) Labour eventually started and at 4.45 a.m. on 14.7.56 she delivered two male foetuses—one was 10" long weighing 12 ozs, and the other 9" and 8 ozs. Blood loss was 6 oz. I.V. Ergometrine 0.25 mg. given after delivery. Placenta had to be manually removed under general anaesthesia.

"CHRONIC POLYHYDRAMNIOS"

CASE II.

Reg. No. 11305 N.G.K. Chinese. Age 30 years B/AN/1756/56

Para 5, Gravida 8—had 2 abortions at the 4th and 5th months.

History:

- (1) L.M.P. = 30.8.55
E.D.D. = 6.6.56
- (2) First seen at Antenatal Clinic on the 17.2.56. Altogether she paid six visits. There were no symptoms of toxæmia.
- (3) On 13.4.56 (30th week)—B.P. = 130/90, fundal height 11½"; girth 35" and liquor + (c.f.B.P. on 17.2.56 = 110/70).
- (4) On 9.5.56 (36th week)—B.P. = 120/80, fundal height 13"; girth 38".
- (5) On 1.6.56 (39th week) — B.P. = 100/60, fundal height 14"; girth 38". Liquor +, no oedema or albumin in the urine.
- (6) Admitted at 9.40 a.m. on 13.6.56. Labour pain having started at 9.00 a.m.

Clinical Examination:

B.P. = 110/80.
P.R. = 88/min.
Temp. = 98.6F.
Heart — soft systolic murmur in the mitral area.
Lungs — clear.
Abdomen; large, fundal height = 15", girth 40", position — ? R.O.A., head

floating, foetal heart heard. Uterine contractions felt once every fifteen minutes.

Varicose veins present in both legs especially the right.

Clinical Diagnosis:

Chronic Polyhydramnios.

Progress Notes:

- (1) Membranes spontaneously ruptured at 11.10 p.m. on 14.6.56; considerable amount of liquor was passed, not measured.
- (2) Delivered a live female infant at 12 midnight 14.6.56 weighing 6 lbs. 12 ozs. Blood loss was 4 ozs., I.V. Ergometrine 0.25 mgm. was given after delivery.

Discussion:

DR. N. N. LING: Presented the two cases.
DR. T. K. CHONG: Enlarged on the theories of the etiology of hydramnios including recent work using isotopes. In concluding he said that the origin of liquor amnii was probably multiple viz. foetal urine, secretion from the amniotic epithelium and transudation from the maternal circulation. He also spoke on management of a case of hydramnios.

"By studies with radio-active elements in guinea-pigs, Vasburgh and his colleagues (1948) demonstrated that the total volume of liquor amnii is replaced on an average once every 2.9 hours and the sodium in the fluid circulated once every 14.5 hours.

As to its origin there are 4 current theories reviewed by Shaw and Marriot (1949).

1. *The fluid is a transudate from maternal vessels.* The evidence for this is the appearance of polyhydramnios in decompensated maternal heart disease or liver disease in pregnancy.
2. *The fluid is a transudate from the foetal circulation.* The evidence is the association of hydramnios with chorioangioma, uniuvular twins and anencephaly.
3. *The fluid is a secretion by the amniotic epithelium.* This is a histologically—proven fact.
4. *The fluid consists mainly of foetal urine:* Makepeace et al (1931) concluded that amniotic fluid originates

as a dialysate in equilibrium with the maternal and foetal body fluids and that it becomes diluted by the hypotonic foetal urine as pregnancy advances. Guthmann and May (1930) found a steady rise in the proportion of ammonia, urea and uric acid in the fluid as pregnancy advances.

Wolff (1904) showed that double nephrectomy in pregnant animals was followed by hydramnios.

Bates (1933), Green (1935) showed cases of agenesis and hypoplasia were nearly always associated with oligohydramnios or absent fluid. In cases with complete absence of fluid the explanation may lie in a co-existent abnormality of the amnion (1) as a diffuse inflammatory change as was described by Schiller and Toll (1927) which destroyed the secretory function of the epithelium, or (2) as amnion nodosum as described by Lanelling (1950) which also destroyed the secretory function of the epithelium.

It is known that in normal foetuses the liquor is re-absorbed via the foetal alimentary and respiratory tracts. Some cases of renal agenesis may have normal amount of liquor amnii. This is because there are associated with anencephalic foetuses, or foetuses with oesophageal, duodenal or pyloric atresia, which are unable to swallow.

In conclusion it may be stated that amniotic fluid is probably derived from the amniotic epithelium and foetal urine, with transudation from maternal and foetal vessels possibly playing a part in pathological conditions.

Treatment and management of labour.

Acute Polyhydramnios:

The most satisfactory and quickest method of treatment appears to be artificial rupture of the membranes per vaginam, which is nearly always followed by relief of symptoms and abortion.

Chronic Hydramnios:

In the majority of cases, mild degrees of hydramnios require no treatment other than some limitation of activity and rest in bed. It is well known that some cases of mild hydramnios especially in the middle trimester, improve spontaneously in the next few weeks.

If the foetus is known to be normal, but the severity of the symptoms demands

before term, abdominal paracentesis may be preferred to vaginal tapping practised nearer full-term in order to obtain a more mature foetus. In doing so, it is useful to remember Rivett's memorial lecture (1946) where he stated "when hydramnios affects one of twins, it is always the sac which is lying in the upper part of the uterus that becomes distended."

The method of treatment is entirely different when there is an undoubted diagnosis of an abnormal foetus and when there is an associated complication such as pre-eclamptic toxæmia or diabetes when induction of labour is indicated.

Anencephalus with hydramnios should be induced as soon as diagnosis is made with the possible exception of cases diagnosed before the 32nd week of pregnancy (Scott Russel, 1954).

Management of Labour:

This differs little from that of other normal cases. Malpresentation when present must be treated accordingly. In induction of labour a high rupture should be done to avoid prolapse of the cord. As a rule there is no difficulty at delivery of an anencephalic foetus with hydramnios but a large anencephalic foetus with large shoulders may obstruct delivery, and may need cleidotomy.

DR. A. C. SINHA: Said that cases of acute hydramnios were very rare. The case under discussion was one of the few he had seen in his whole career. Muller of New York published four cases of acute hydramnios. These were not like the one under review, manifesting symptoms in the early part of gestation and all ending up in miscarriage.

PROF. B. H. SHEARES: Said that he had seen only three cases of acute hydramnios in his 25 years as an obstetrician. Abnormality of the amniotic fluid began early, in the first trimester. Hydramnios was common in twin pregnancies, the incidence being about 1 in 16 of all twin pregnancies.

Diagnosis was mainly by clinical estimation viz. (1) size of uterus with respect to the period of amenorrhoea. (2) Pressure symptoms, most important of which was dyspnoea, (3) ease of ballotment of the foetus after the 32nd week, and (4) difficulty in mapping out foetal parts.

Moetal abnormality was high 34% were anencephalic while 4% were hydrocephalic. It was important to note that hydrocephalus could occur with hydramnios. It was very rare for a well controlled diabetic patient to suffer from hydramnios. Pre-eclamptic toxæmia was definitely more frequent in cases of hydramnios, the figure being 160 per 100,000 c.f. 50 per 100,000 in ordinary cases.

As regards prognosis, there was a 4-10 chance of obtaining a normal infant. DR. J. LEWIS: Asked what was the incidence of recurrence of hydramnios in subsequent pregnancies.

PROF. B. H. SHEARES: Replied that it was more likely to occur in the high parity group.

DR. J. LEWIS: Asked what would have happened if the acute hydramnios were left alone.

DR. A. C. SINHA: Replied that she could have collapsed or delivered spontaneously.

PROF. B. H. SHEARES: Did not believe in paracentesis to relieve pressure symptoms as there was a complete change in the liquor amnii every 2.9 hours. This method of treatment was only advocated by the British doctors.

DR. A. C. SINHA: Said that the use of isotopes such as Deuterium Oxide opened up vast possibilities in research. By this the relative permeability from the maternal circulation into the liquor amnii at different periods of gestation might be determined. The answer to the origin of liquor amnii was still debatable.

DR. T. K. CHONG: In answer to a question by Dr. Sinha said that histological examination of the amniotic epithelium should reveal whether the tissue has secretory properties—such as the presence of goblet cells etc.

PROF. B. H. SHEARES: Asked if the placentae of these two cases had been examined because a high percentage of such cases showed circumvallate placentae.

DR. A. C. SINHA: Replied that this was not so in the cases under discussion.

DR. T. K. CHONG: Said that in his opinion ammonium chloride had no place in the therapy of hydramnios. He had no knowledge about the use of saccharine.

PROF. B. H. SHEARES: Said that diuretics such as Diamox mercurial products etc. had been used to advantage in cases of hydramnios.

DR. A. C. SINHA: Commented that work has been done on the effect of sucrose in hydramnios. The theory was that by making the liquor amnii sweet, the foetus would drink more of it and thereby help in draining away excess liquor. Saccharine might have been used with the same object.

DR. T. K. CHONG: Enquired about the experiences of Dr. Sinha and Prof. Sheares with respect to (1) the incidence of uterine inertia in cases of hydramnios. (2) the situation of the twin having hydramnios whether it was the upper sac which was usually responsible.

DR. A. C. SINHA: Replied that his impression was that the incidence of inertia was not significantly increased in these cases.

PROF. B. H. SHEARES: Agreed with Dr. Sinha. Further, in his experience the upper sac in a twin case was usually the offending one. He recalled performing low rupture of the membranes in a number of cases of hydramnios complicating twin pregnancies, where he obtained only a few drops of liquor. These were probably cases where the hydramnios was in the upper sac.