

# SPONTANEOUS ANNULAR DETACHMENT OF THE CERVIX

## Case Report

by

M. S. LAKSHMI, M.D.

Annular detachment of the vaginal portion of the cervix during labour is a rare complication. Jeffcoate and Lister suggest that many specimens are probably not being described. In 1933, D'costa collected reports of 17 cases including one of his own. Clarence B. Ingrata and E. Stewart Taylor have been able to find 54 cases and one, which they reported on May 1947. Because of the rarity of this condition the following case is reported.

### Case Report.

Mrs. P., aged 23 years, was admitted at 2 A.M. on 7-3-1961 in Women and Children Hospital, Egmore, Madras, with a history of 9 months' amenorrhoea, pains and draining liquor amnii since 6 P.M. on 6-3-1961. She was a primigravida, married 3 years.

**General Examination.** Good general condition; height 5' 1"; not anaemic; cardiovascular and respiratory systems appeared normal; blood pressure 100/70 mm. Hg; haemoglobin 65%, temperature 99.8°F, pulse 100 per minute. Urine—no albumin, no sugar.

**Obstetric Examination.** Uterus full-term L.O.A. Head fixed. Foetal heart 140 per minute.

**Vaginal Examination** at this stage revealed: cervix was 2/5th dilated, thick. Full bag of membranes; vertex—L.O.A. at the level of the ischial spines. No disproportion. It was decided to give pethidine 100 mgms. intramuscularly and crystalline penicillin 5 lakhs 6th hourly. The patient

*Registrar in Gynaecology, Women and Children Hospital, Egmore, Madras.*

was watched.

7-3-61: Throughout the day she was having mild pains. Slight draining. Foetal heart good.

11 P.M.: Moderate pains. Foetal heart good. Temperature 99°F. Patient having discomfort even between pains. Head well fixed.

P.V.: Cervix 2/5th dilated. Taken up. Firm to the touch. Membranes intact. Head at same level.

100 mgms. of pethidine was given intramuscularly.

The patient continued to have mild to moderate pains throughout 7-3-61. Head was now engaged. Foetal heart was good.

8-3-61: Moderate pains at long intervals.

Foetal heart 130 per minute. Temperature 99.8°F. Pulse 110 per minute.

5.30 P.M.: Membranes ruptured. The liquor amnii was offensive. Head engaged. Foetal heart good. There was slight abdominal distention. Temperature 99.8°F.

6-30 P.M.: Foetal heart 110 per minute; Pulse 104 per minute.

P.V.: Cervix thick, 2/5th dilated, tightly gripping the head. Membranes absent. Vertex at the ischial spines.

L.O.T: small caput.

10 P.M.: Achromycin 500 mgms. was given as an intravenous drip. It was decided to start a Syntocinon drip as the uterine contractions were not satisfactory. 2½ units of Syntocinon in 540 c.c. of 5% glucose saline was started intravenously at the rate of 15-20 drops per minute. Foetal heart was 110 per minute. Persistent blood stained discharge was noticed.

4.15 A.M.: The drip was over. Head could not be felt per abdomen. Foetal heart 110 per minute.

**P.V.:** Head was below the level of the ischial spines. L.O.A. small caput.

An annular detachment of the cervix  $1\frac{1}{2}$ " from external os was felt. It was attached at 7 O'clock for a thickness of  $\frac{1}{2}$ ".

It was decided to deliver the patient and at 5.05 A.M., on 9-3-61, outlet forceps applied and a slightly asphyxiated male baby ( $5\frac{1}{2}$  lbs.) was delivered easily. Methergin 0.2 mgms. was given intravenously during the delivery of the anterior shoulder. Placenta was expelled entire with membranes. There was no bleeding. The detached cervix came out with the baby.

The patient had a febrile puerperium for three days. Temperature ranged between  $100^{\circ}$ - $102^{\circ}$ F. Achromycin was continued as 250 mgs. t.d.s. orally. Thereafter the puerperium was uneventful. Baby was well.

A vaginal examination made one month after the delivery showed that the cervix was almost flush with the vaginal vault.

**Pathological Report.** The specimen was a hemispherical ring dark reddish blue in colour; firm in consistency; 4" across; opening of external os was  $2\frac{1}{2}$ ", thickness was  $\frac{1}{2}$ ".

**Histopathology.** Necrotic tissue with congestion; stratified squamous epithelium seen.

**Differential Staining for Elastic Fibres.** Only muscle fibres seen. No elastic fibres made out.

#### Discussion

Labour had been very prolonged in this case, lasting 59 hours. There was definitely no cephalo-pelvic disproportion but cervical dilatation never progressed. Repeated vaginal examination revealed a taken-up but firm thick cervix. The pitocin drip might have hastened the process of separation of the cervix. The persistent slight bleeding during the last stages of labour might have been due to the slow detachment of the cervix.

From their analysis of the case reports, Clarence B. Ingrata and E. Stewart Taylor draw the following conclusions—

- (1) 75% of the cases occurred in primiparas.
- (2) The average age was 31 years.
- (3) Average duration of labour was 58 hours. The longest was 108 hours. The shortest was 11 hours.
- (4) Premature rupture of membranes occurred in 48%.
- (5) There was cephalopelvic disproportion in 25% of the case reports.
- (6) Average weight of the baby was 3414 gms. (7.6 lbs.).
- (7) Five cases of annular detachment of the cervix occurred after using a hydrostatic bag. But this could hardly be called a spontaneous annular detachment of the cervix.
- (8) Seventeen authors made note of a rigid cervix in the first stage of labour.
- (9) There were 4 maternal deaths in their series. They were due to infection.
- (10) When post-partum haemorrhage occurred, it was not from the cervix, but due to uterine atony.
- (11) Foetal mortality was 20%.

The exact cause for the cervical detachment is not well understood. A rigid non-dilating cervix is found. Since 75% of the cases reported were in elderly primigravidae, cervical rigidity was favoured. But here there was no particular structural difference.

There was definitely no disproportion.

tion. The upper edge of the cervix was necrotic.

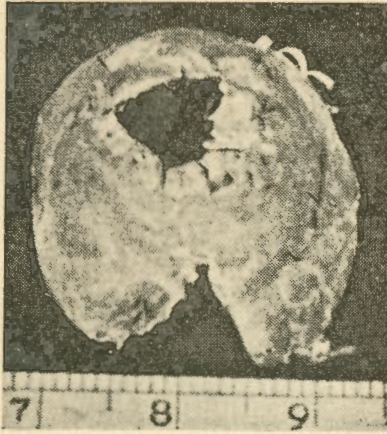


Fig. 1

The case report of Jeffcoate and Lister, in 1952, is of a primipara, aged 17 years. Labour was prolonged. Patient was repeatedly sedated and cervix was not dilating. Repeated vaginal examinations showed no dilatation. Labour lasted 60 hours and was terminated by forceps.

Their study revealed that in almost all the cases the head was low down in the pelvis. The cervix offers a mechanical barrier.

There should be strong contractions pressing the head down on the effaced cervix. At the cervicovaginal junction ischaemia sets in and separation occurs.

The future obstetric career of the patient would be interesting to follow. Infertility, abortions and premature deliveries have been noted. Gilles' patient had 5 normal deliveries later. DeCosta's patient was delivered by caesarean section. Decision

is best taken by examining the patient at term. This patient has been advised to report soon after she conceives.

### Summary

A case report of annular detachment of the cervix is presented. The diagnosis was made just before deciding to deliver by forceps. The case presents all the typical features conducive to annular detachment of the cervix. A primipara, head well down in the pelvis, forceful uterine contractions, a prolonged labour and rigid cervix.

My thanks are due to the Superintendent of the Hospital for permitting me to publish this case.

### References

1. Browne F. J.; Postgraduate Obst. and Gyn.; 1955.
2. Ingrat Clarence B. & Taylor E. Stewart: Amer. Jour. of Obst. and Gyn.; 53, 873, 1947.
3. DeCosta E. J.: Amer. Jour. of Obst. and Gyn.; 25, 577, 1933. Phillips L.: Proc. Roy. Soc. Med.; 20, 1659, 1927.
4. Dorsett L.: Amer. Jour. of Obst. and Gyn.; 14, 243, 1927.
5. Epstein J. R.: Am. Jour. of Obst. and Gyn.; 41, 899, 1941.
6. Greenhill: Text Book of Obstetrics; 1960.
7. Jeffcoate TNA. & Lister Ursula M.: Brit. Jour. of Obst. and Gyn.; 59, 327, 1952.
8. Westerman M. D.: Brit. Med. Jour.; 2, 606, 1942.

**Case Report**

Patient, apparently a young girl of 16, Muslim, married, hailing from Jhansi, was admitted in the Gynaecology Ward of K. R. Hospital on 17-4-61 with complaints of primary amenorrhoea and attacks of pain in abdomen every 2-4 weeks for the last three years, and occasional bleeding from the nose, specially in summers, for the last 6 years.

In family history there was nothing particular. Patient had two sisters and one brother. The elder sister was married and had 5 children. The younger sister was only 12 years old but apparently normal.

No other female in the family had similar trouble.

The patient had the appearance of a normal female (Figs. 1, 2 and 3), had



Fig. 1

feminine interests and normal libido, and had been married for the last 2 years.

General examination revealed the patient to be a well nourished, fairly built healthy young girl. Her breasts were well developed, nipples and areolae were normal (Figs. 2 and 3). Axillary hair was absent;

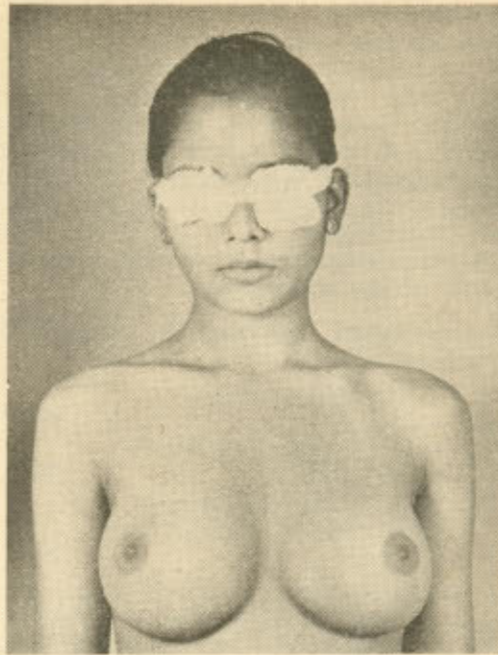


Fig. 2



Fig. 3

there was no enlargement of lymph glands and no anaemia. She was getting normal sleep and had normal appetite. There was no trouble with her micturition and sex life. She had sought medical advice primarily because of her amenorrhoea and sterility and loss of interest on the part of the husband on this account. Her blood pressure was 120/80 mm. of Hg. and pulse rate 78 per minute.

Systemic examination revealed no abnormality in any other system.

#### Gynaecological examination and body measurements

- |   |       |
|---|-------|
| 1. Height of the patient (standing)                                 | — 62" |
| 2. Top of symphysis pubis to top of head                            | — 31" |
| 3. Floor to top of symphysis pubis (with patient standing on floor) | — 31" |

The patient had never menstruated. External genitalia looked typically feminine (Fig. 4). Pubic hair was scanty and there



Fig. 4

was no enlargement of the clitoris. There was a swelling in the right labium majora which was hard to feel and could be moved up towards the inguinal canal. A similar swelling was seen in the left inguinal canal which could be brought down in to the left labium majora (Fig. 5).

**P. V. Examination.** Vagina admitted two fingers easily. No cervix or uterus could be felt. No adnexa could be palpated. Length of the vagina was 3½". Per



Fig. 5

speculum, carvix could not be visualised.

**Investigations.** Under anaesthesia biopsy from the swellings in right labium majora and left inguinal canal was taken on 3-5-61 and the pathologist reported as follows:

Left side — Section shows vascular fibrofatty tissue.

Right side — The section shows moderately well-developed seminiferous tubules but without spermatogenesis.

Diagnosis — "Testis".

Barr's chromosomal sex test was done (neutrophil method) on blood film and the report was chromosome sex negative (male type). Barr test was also carried out on buccal smear and skin biopsy material on 24-5-61. Their reports are as follows:-

Buccal smear — Chromosomal sex negative (male type).

Skin biopsy report — The spinous cell nuclei show lack of sex chromatin in most of the nuclei.

Diagnosis — Chromatic negative type nuclei (male).

Exploratory laparotomy was done on 4-5-61. No uterus, tubes or ovaries were seen. In their place there was present a flap of tissue like a fold of peritoneum with a thickened upper and lower border running from one side of the pelvis to the other. The thickened upper border ran like a band across the pelvis and was attached to pelvic walls on either side. The thickened lower border was going back to the peritoneum near the pelvic colon.

Vaginal smears of the patient were taken twice at 2 weeks' interval and the patho-

logist's report was: Most of the epithelial cells are from vaginal mucosa, none from uterine cavity. Most of the epithelial cells show a very small pyknotic nucleus and purple and violet cytoplasm. Few show cornification. There is no relation with ovulatory cyclical changes.

### Discussion

The case is extremely interesting in that the true genetic sex of the subject could only be decided as male as a result of Barr's sex chromatin test and gonad biopsy. To all appearances the patient was a well-developed young lady having normal body proportions (upper and lower measurements equal) and feminine traits and interests, and normal libido. The patient was also married and her married life would have been happy but for the discontent of her husband on account of her primary amenorrhoea and sterility.

This patient presented the typical picture of type two male pseudo-hermaphroditism as described by Simpson, Mason and Swyer.

Danon and Sachs (1957) reported that in such a case there is an excess of nuclei with their chromocentres in skin cells. They believed this to be due to the presence of an excess X chromosome giving a cellular constitution of XXY. In the present case, however, Barr's test was negative showing that the cellular constitution was XY (male type).

The female physiognomy and external sex organs as also a practically normal-sized vagina in the patient, in the absence of any ovarian tissue, is indeed interesting. It is possible that the poorly developed testes might be secreting oestrogens which brought about the development of the

female characters. Heard, Bligh and Cann et al (1956) have reported that the testis of stallion contains large quantities of oestrogens and their urine also contains high titre of oestrogens. Goldzieler and Roberts (1952) have reported the presence of oestrogens in the human testis. Placenta is known to be capable of converting testosterone into oestrogens by removing some double bonds and adding a methyl (CH<sub>3</sub>) group at C<sub>10</sub>. It is possible that in such pseudo-hermaphrodites the poorly developed testes may be producing oestrogens.

Interesting light has been thrown on the production of this type of hermaphrodites by recent experiments in which castration has been carried out in foetal rats, rabbits and mice, and the development of the castrated foetuses allowed to continue in the abdominal cavity of the mother (Wells, 1950 and Wells, 1957). It has been found that after removal of the ovaries the female foetus grows into a female but after removal of testes the male foetus develops into an apparent female with vagina and external genitalia resembling those of a female. It has thus been surmised that testis is the predominant gonad and in its absence (with or without the simultaneous presence of ovaries) the embryo grows into a female. Jost (1953, 1954) has therefore concluded that in placental mammals the testis plays the principal part in differentiating the sexes and the absence of the testes, as in normal females and castrated foetuses of either sex, the female type is realised. It appears from experimental evidence available so far that the testes in a young embryo

secrete inductors or similar agents independently of pituitary gonadotropins which retard the Mullerian ducts and cause differentiation of the Wolffian ducts. Later, they start secreting androgens when adequate stimulus of pituitary gonadotropins is available and these continue further differentiation of the Wolffian ducts. In view of the above, it is possible that this type of male pseudo-hermaphroditism may be the result of some factor or factors bringing about functional ablation of the foetal testes leading to differentiation of the Mullerian ducts and suppression of Wolffian ducts and production of a female type of individual. On such a background, if one imagines the super-added action of oestrogens secreted by such an ill-developed testis, one could account for the mammary growth, feminine physiognomy, etc.

#### *Treatment*

As the patient was outwardly and also psychologically a normal female, it was considered best not to make her aware of the true genetic sex as it would have done no good and only produced severe mental trauma. She was simply advised that her amenorrhoea and sterility unfortunately could not be cured and she should adapt herself to this shortcoming.

#### *Summary*

A case of male pseudo-hermaphroditism type two has been reported and its possible causation discussed.

#### *Acknowledgements*

Author is thankful to the staff of the Department of Pathology, specially to Dr. B. S. Darbari, M.D., for the kind help in carrying out the Barr's test and vaginal smear examinations.

#### *References*

1. Armstrong C. N.: Brit. Med. J.; i, 1173, 1955.
2. Beatty D. C., Champ C. J. and Swyer G. I. M.: Brit. Med. J.; i, 1369, 1953.
3. Danon M. and Sachs L.: Lancet; ii, 20, 1957.
4. Goldberg M. B. and Maxwell A. F.: J. Clin. Endocr.; 8, 367, 1948.
5. Goldzieher J. W. and Roberts I. S.: J. Clin. Endocrinol.; 12, 143, 1952.
6. Heard R. D. H., Bligh E. G. and Cann M. C. et al: Recent Progr. Horm. Res.; 12, 45, 1956.
7. Jost A.: Recent Progr. Horm. Res.; 8, 379, 1953.
8. Jost A.: Cold Spring Harbor Symp. Quant. Biol.; 19, 167, 1954.
9. Morris J. H. L.: Amer. J. Obst. Gyn.; 65, 1192, 1953.
10. Schneider R. W., Van Ommen R. A. and Hoerr S. O.: J. Clin. Endocr.; 12, 423, 1952.
11. Simpson S. L., Mason A. S. and Swyer G. I. M.: Major Endocrine Disorders; Oxford Univ. Press, 1959.
12. Turner C. D.: General Endocrinology. W. B. Saunders Company, Philadelphia and London, 1960.
13. Wells L. J.: Arch. Anat. Micro. et Morphol. Exper.; 39, 499, 1950.
14. Wells L. J.: 3rd Conf. New York, Josiah Macy Jr., Found., p. 187, 1957.