

The Suspect Pelvis and its Management (Clinical Aspect)

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A pelvis which we regard with suspicion, mistrust or apprehension is commonly referred to as a Suspect Pelvis.

The evidence which should engender our suspicions in regard to the innocence of the pelvis are:—

- (1) A head which fails to enter the pelvis at the proper time (theoretically at the 37th or 38th week in the primigravida) either spontaneously or by manipulation.
- (2) A history of previous difficult labour.
- (3) Clinical evidence of an inadequate maternal pelvis especially when associated with other unfavourable clinical factors.
- (4) A history of pelvic injury that might have resulted in a deformity of the birth canal.
- (5) A history of disease that might have affected the skeletal development such as infantile paralysis, rickets, etc.

Today I intend to dwell on the method of clinical examination of the pelvis designed to classify it as innocent or unblamable (in other words, clinically adequate or normal) or on the other hand Suspect. The suspect group infers the presence of deviation from normal in one or other of the pelvic segments.

In order to appreciate the contour or architecture of the pelvis it would be advantageous if one were to conceive the pelvic cavity as a canal consisting of an anterior and a posterior segment joined at the widest transverse diameter, for it is not unusual for the head in negotiating the pelvis to adapt its mechanism to suit the greater space available either in the anterior or posterior segment. Often in cases of minor contraction of one segment of the pelvis the other

segment compensates by adequacy of its size and shape.

Clinical methods of examination of the pelvis can attain a practical degree of accuracy, not only in recognition of deviations from the normal but in the diagnosis of the morphological pelvic type.

Clinical examination in most instances will assist in the selection of patients for X-Ray examination at term or in early labour. As a result X-Ray examination can be reduced to 20% of patients seen in pre-natal clinics.

Techniques of Vaginal Examination

The patient must be placed comfortably in the lithotomy position. The examination must be conducted in a routine manner, beginning by inspection of the symphysis pubis and the perinaeal slope, palpation of the subpubic arch and then proceeding towards the pelvic inlet until the diagonal conjugate has been measured.

The main objects of the exercise are (1) recognition of contraction of one or more cardinal diameters of the pelvis (2) A search for android characteristics.

The points to be noted in the vaginal examination are:

- (1) The Slope of the perinaeum. A slope that is perpendicular to the horizontal is suggestive of an anthropoid pelvis whilst one that is obtuse suggests an android pelvis.
- (2) Examination of the physical characteristics of the ischial spines by direct palpation. The ischial spines are classified as not prominent (shallow), average or prominent (sharp).

- (3) Appraisal of the size of the sub-pubic arch.

Appraised of the slope of the side walls (4) of the pelvis.

The method of eliciting points (3) and (4) is by maintaining the examining fingers in alignment with the long axis of the forearm. By an act of pronation the fingers pass from the left ischial spine to the opposite ischial spine following the conformation of the pelvic soft parts and maintaining alignment with the axis of the forearm. A narrow subpubic arch, converging side walls, narrow interspinous and intertuberos diameters are evident from the resistance offered to this act of pronation and the examining fingers are displaced downward away from the symphysis (This resistance cannot be appreciated if the fingers become flexed in the manoeuvre).

- (5) Palpation of side walls of forepelvis anterior to ischial spines in region of the obturator fossa.
- (6) Appraisal of the available space in front of the sacrococcygeal platform.
- (7) Estimation of the distance between the level of the sacrococcygeal platform and the ischial spine.

Place one finger on the tip of the spine and the other on the sacrococcygeal platform in the middle line. This manoeuvre gives the length of the sacrospinous ligament. Average length of this ligament is approximately 3 fingers. A ligament of 2 fingers or less suggests the presence of a forward sacrum. A long ligament indicates that the sacral tip is displaced backwards. If the sacrum is forward but long and extends forwards to a lower level than the ischial spines, the head mechanism is not affected. If the sacrum is forward but elevated towards the level of the ischial spines, the prognosis is not so good.

- (8) Sacral curvature and inclination.

These characteristics are ascertained by palpating the anterior surface of the sacrum **upward** towards the promontory. The curvature may be average, marked or straight and the inclination average, forward or backward.

- (9) Palpation of the retropubic angle.

- (10) The Hillis manoeuvre for estimation of cephalo-pelvic disproportion at the pelvic brim.
- (11) Measurement of the diagonal conjugate.
- (12) Measurement of the A. P. of the out-let.
- (13) Measurement of the intertuberos diameter.

Measurements:

Inlet:	True conjugate	...	...	11.5
	Transverse	...	...	12.5
	Post Sagittal	...	...	5.0
Outlet:	A. P. coccygeal tip	...	...	13.0
	A. P. Sacral tip	...	...	11.5
	I. S.	...	...	10.5
	I. T.	...	...	10.9
	Post Sagittal (mid strait)	...	...	5.0
	Post Sagittal (Thom's)	...	...	8.5

If I. T. Less than 8.5 cm. or Thom's diameter (Sum of I. T. and Post Sagittal) less than 15 cm. outlet is contracted.

Anthropoid and intermediate anthropoid types are more frequent than extreme Android types. In most cases of arrest of the head in mid-pelvis the pelvic type is anthropoid with converging side walls. In Android type with converging side walls arrest occurs at the inlet.

If, as the result of the vaginal examination, the pelvis is classified as **Suspect** (by inference, some deviation from the normal was discovered in one or other of the pelvic segments) then visualisation of the pelvic architecture (pelvioradiography) by means of X-Ray should be carried out.

The use of X-Ray methods for the measurement of the pelvis began in 1899, soon after the discovery of X-Rays. Since that time approximately 146 methods or variations of methods have been described in the literature and about 442 articles on X-Ray pelvimetry have appeared in the last 20 years.

Why are new methods of doing the same thing (pelvimetry) being presented so frequently? It is not that the existing methods of X-Ray pelvimetry are inaccurate, but because of the fundamental inadequacy of pelvic measurements in supplying the answer in cases of questionable disproportion.

X-Ray pelvimetry has its short-comings. It must be studied with pelvic architecture, presentation and relative size of the foetal head.

It is obvious that such a study supplies the obstetrician with 2 of 3 important factors in labour—the pelvis and the foetal head.

Such a study is mandatory in all cases of suspect pelvis but it cannot substitute for the clinical judgement of the obstetrician. However, as **sight** is the most acute of all sense, **visual** information as to the shape of the passage, the position of the foetus and the relative sizes of the two can considerably enhance the judgement of the obstetrician as to the value and efficiency of a test of labour and aid him in making his decision as to the best and safest procedures to be used in his management of the labour and the delivery.

Size of the foetal head has been mentioned in relation to size of the pelvic cavity. One would have thought that, with improvements in modern X-Ray methods, it would be possible to estimate the degree of disproportion between pelvic brim and foetal head. Yet, to date, no clearly proven scientific method of detecting **quantitative** disproportion has been evolved. The literature abounds with descriptions of various methods and modifications of methods of estimating quantitatively cephalopelvic disproportion. This goes to show how leading authorities disagree with each other's methods.

Broadly, these methods are based on area measurements of the cardinal diameters of the pelvis (Nicholson, 1938, Mengert 1950), or volumetric concept of the 3 cardinal diameters (Ball and Marchbanks 1935) or stereoscopic methods using cardboard circles of known diameter graduated from 8.0 cm. to 12.5 cm in 0.25 cm. intervals (Moloy & Steer 1950).

Obstetric Prognosis:

When the pelvis has been classified as suspect one sets out to make an **Obstetric prognosis**. This is based on (1) The shape and anatomic characteristics of the maternal pelvis (2) The relationship of the presenting part to the pelvic inlet (3) Evaluation of the relative size of the foetal head and the birth canal. One tries, in fact, to predict the probability of arrest at various pelvic levels.

If there is overwhelming evidence in regard to the culpability of the pelvis there will be no point in giving the pelvis a trial. An elective Caesarean Section is the only course to take. The evidence which should damn the pelvis are (A) In the case of the inlet: A true conjugate less than 8 cm. and transverse less than 10 cm. (B) In the case of the outlet: Thom's diameter

of less than 13 cm. (C) In the case of the elderly primipara: Almost any degree of pelvic contraction.

The Suspect Pelvis

On the other hand, if the Suspect pelvis cannot be condemned straightaway on the basis of the evidence I have just mentioned, then, it should, in all fairness, be given a trial. This chance should also be given to the pelvis of a parous woman whose previous foetus have been small and were born easily (except, of course, in the case of para-4 and over).

The Suspect pelvis is judged "guilty" when after a fair trial the head fails to negotiate. The witnesses that are going to help prove the pelvis to be innocent are "the factors unknown until labour has been in progress for some time". The factors that are unknown until labour has been in progress for some time are:— (1) Type of pains (2) Amount of head moulding (3) The ultimate presentation (4) The ability of the patient to stand pain (5) Perhaps, the amount of pelvic joint relaxation (suspect or hostile witness).

The trial includes all proceedings from the time when the issue is joined to the time of its final determination. It is incumbent upon the obstetrician to see to it that the trial is an honest one and that every chance is given to the pelvis to prove its innocence. The witnesses should not be prevented from giving all out assistance to the pelvis. Thus if sedation, nourishment and maintenance of electrotype balance are not taken care of, the patient will develop acidosis and even proceed on to the stage of exhaustion with resultant curbing of effective uterine pains and persistence of unfavourable head presentation. After all, the most important witness is the type of pains and to neglect proper expression of this witness would be tantamount to dishonesty.

The Trend of the Trial

The important indication that the **trend** of the trial is towards proving the pelvis innocent is the behaviour of the cervix in labour. It is often the best index as to the ultimate outcome of the labour. The other points of note in the vaginal examinations during the trial are (1) the station of the head (i.e. descent), (2) the degree of flexion and moulding and (3) the position of the occiput (i.e. rotation).

The trial should not, as a rule, last longer than 24 hours. In the favourable case, where the uterus has functioned well, the os reaches full dilation before the lapse of 24 hours, the head has

descended to the outlet and the controversy is settled.

However, in the less favourable case it is often undesirable to give a full trial because there may be signs of impending maternal or foetal distress.

The Unfavourable Factors

The unfavourable factors in a trial of labour are:— (1) early rupture of the membranes, suggesting a graver degree of disproportion or an occipito-posterior position. (2) Uterine inertia which usually implies poor application of the presenting part to the lower uterine segment.

(3) The dystocia dystrophia syndrome. (4) The age of the patient. (5) Most **especially**, the variety and degree of pelvic contraction and the degree of disproportion.

The prospects of a successful vaginal delivery in borderline cases of suspect pelvis is approximately 3 in 4.

Trial by Ordeal

However, let not the trial of labour for the patient be a case of trial by ordeal. It is quite usual, at the end of the proceedings, for the obstetrician to feel that he himself, in fact, has been through a trial by ordeal.