

NONPUERPERAL UTERINE INVERSION

Review of literature

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Nonpuerperal or gynaecological inversion of the uterus is extremely rare and usually receives discussion incidental to the reporting of the more common puerperal or obstetric inversion. No estimate of its incidence occurs in the literature but it has been postulated that it accounts for about one-sixth of the inversions⁽³⁾. In American and British literature 74 cases have been described. Because of this rarity no one gynaecologist sees enough such inversions to arrive at a plan of therapy. The object of this paper has been to collate and review the existing literature on this subject and to outline its management.

Hippocrates (460-370 B.C.) has been given credit for being the first to recognize inversion of the uterus. Prolapse was often confounded with inversion but Avicenna (980-1037 A.D.) gave an excellent description of the differential diagnosis between uterine inversion and prolapse. Early methods of treatment consisted of placing a ligature around the inverted body of the uterus and the organ was permitted to slough gradually. Sometimes patients did survive. According to Jones⁽⁹⁾ inversion of the uterus is classified into two groups: puerperal or obstetric inversion and nonpuerperal or gynaecological inversion. Both groups can be divided into incomplete, complete and total inversion, in relation to the degree of inversion.

In incomplete inversion the inverted uterine fundus lies above or at all events not below the level of the external cervical os. In complete inversion the fundus uteri passes the external cervical os, whereas in total inversion there is complete inversion of the uterus and either part or all of the vagina⁽¹⁰⁾. The puerperal or obstetric inversion is associated with abortion, miscarriage or term delivery. It usually occurs during or immediately after the third stage of labour. It has been suggested that further classification is ar-

SUMMARY

Nonpuerperal or gynaecological inversion may be the result of both benign and malignant tumors. A review of the literature concerning this gynaecological rarity is given with respect to surgical management.

bitrary but, because manual replacement at once is the therapy of choice⁽¹¹⁾, distinguishes acute puerperal inversion in which no cervical contraction ring has been formed from subacute and chronic puerperal inversion. In the subacute puerperal inversion a constricting cervical ring is formed which may make manual replacement by the Johnson method very difficult⁽⁸⁾. In chronic inversion surgical management is the choice of therapy.

Nonpuerperal inversion of the uterus can be classified as tumor-produced and idiopathic. Tumor-produced inversion is caused by traction of an intrauterine neoplasm (usually attached to the fundus), which extrudes from the uterine cavity. The German literature has referred to the term "onkogenetic" inversion⁽¹⁾. Exact translation of onkogenetic inversion would indicate a tumor-produced by inversion, whereas the reverse is intended. Idiopathic inversion occurs spontaneously and is not caused either by any error in the management of delivery or by a neoplasm^(14, 16). Nonpuerperal uterine inversion, either tumor-produced or idiopathic is usually not accompanied by inversion of the vagina⁽⁴⁾. In the tumor-produced variety the accident of inversion is difficult to recognize and the inversion is chronic. In idiopathic nonpuerperal inversion the accident is often abrupt and accompanied by shock and pain as in the case of Selkin-Aronson and Karen. Nonpuerperal tumor-produced inversion is mostly associated with submucous myoma, but is also known as a result of sarcoma, endometrial carcinoma and mesodermal mixed tumors^(2, 3).

In 1940 Das collected from the literature 58 cases of nonpuerperal inversions of the uterus. In 54 cases of tumor-produced inversion there were 47 cases (87%) of leiomyoma, 4 cases (7.4%) of sarcoma and 3 cases (5.6%) of endometrial carcinoma. Four cases were idiopathic. Lascarides and Cohen⁽¹³⁾ reviewed the

literature up to 1966 and they were able to collect 15 cases of nonpuerperal uterine inversion, two of which were idiopathic. Of the 13 cases of tumor-produced inversion there were 8 cases (61.6%) due to leiomyoma, 3 cases (23%) of sarcoma and 2 cases (15.4%) of endometrial carcinoma. Craig in 1958 reported a case due to a mesodermal mixed tumor. This case was one of the two cases caused by sarcoma in the collection of Lascarides and Cohen.

The reported cases of nonpuerperal inversion of the uterus after 1966 are listed in table 1. Two cases not mentioned in the review of Lascarides and Cohen are added in the table^(15, 17).

Idiopathic nonpuerperal inversion seems to be extremely rare; Thorn⁽¹⁹⁾ reported only 13 such cases, while Das⁽⁴⁾ found 4 cases of nonpuerperal inversion to be idiopathic. After 1940 only 2 cases were reported^(12, 16).

When the possibility is kept in mind diagnosis should be easily made. According to the aetiology nonpuerperal inversion occurs most often in older women. Some chronic vaginal discharge which may be menorrhagia, metrorrhagia or leucorrhea is usually mentioned. Chronic blood loss produces anemia with associated fatigue and weakness. There may be chronic pelvic discomfort, aggravated by standing and walking. Sometimes "bearing-down sensations" as in labour pains can be presented. There may be bladder irritability with frequency and dysuria. The history or record of an abdominal tumor which has diminished in size, the presence of a vaginal tumor, the inability to sound the uterine cavity and the cupshaped or apparent absence of the uterine body should make the diagnosis clear. The physical signs of nonpuerperal inversion are similar to those of a polypus, however in the last case a probe can always be passed through the external cervical os.

TABLE 1. — *Summary of nonpuerperal uterine inversion, 1966-1982.*

Reference	Age	Diagnosis preoperative	Diagnosis postoperative	Therapy	Outcome
Riterband, 1960	55	Inversion of uterus due to submucous myoma	Inversion of uterus due to leiomyoma	Manual replacement failed. Combined abdomino-vaginal subtotal hysterectomy	Uneventful
Sitaratna, 1962	40	Cervicocarcinoma	Inversion of uterus due to leiomyoma	Vaginal hysterectomy and bilateral salpingo-oophorectomy	Uneventful
Ashmore, 1975	15	Inversion of uterus due to tumor	Inversion of uterus due to mixed mesodermal tumor	Abdominal total hysterectomy, bilateral salpingo-oophorectomy	Uneventful, no recurrence
Daw, 1977	46	Inversion of uterus due to a mass	Inversion of uterus due to leiomyoma	Abdominal total hysterectomy	Uneventful
Pride, 1977	51	Inversion of uterus due to a mass; acute bilateral hydro-nephrosis	Inversion of uterus due to leiomyoma	Vaginal amputation of mass and uterine fundus; replacement by Haultain - procedure; abdominal total hysterectomy and bilateral salpingo-oophorectomy	Uneventful; normal postoperative IVP
Holzer, 1979	53	Carcinoma of cervix	Inversion of uterus due to sarcoma	Vaginal excision of mass for PA examination; Haultain procedure failed; Abdominal total hysterectomy bilateral salpingo-oophorectomy	Uneventful, postoperative 8400 R telecobalt

Statistical tabulations in determining the best method of therapy cannot be obtained from the literature because nonpuerperal inversion of the uterus is too rare. Vaginal hysterectomy, abdominal hysterectomy, vaginal excision of the tumor and replacing the uterus either spontaneously or manually and combinations of these procedures have been used. The mortality has been surprisingly low, about 8% (⁴). Management of this rare condition must be individualized.

Most Authors advocate surgical treatment consisting of replacing the inverted uterus to its normal anatomic position followed by hysterectomy. Definitive surgery should be deferred until all infection

has been cleared up. Histologic diagnosis prior to any definitive surgical treatment is essential for proper surgery may call for an extended hysterectomy. Whenever possible a benign tumor could be excised vaginally to allow the subsidence of infection and edema and replacement of the inverted uterus alone might be enough. It is clear that in the case of a submucous myoma hysterectomy may not be necessary if the peritoneal cavity is not opened. If the peritoneal cavity is opened, hysterectomy either vaginal or abdominal becomes necessary.

Four main surgical procedures are described to correct the inverted uterus, two by the abdominal route and two by the

vaginal route. The Huntington operation⁽⁷⁾ consists of median laparotomy followed by placing 4 Allis clamps on the body of the inverted uterus, just within the inversion cup. By pulling the cup upwards two other pairs of Allis clamps grasp the uterus at a lower level and the procedure is repeated until correction is performed. Replacing the uterus by the Huntington procedure is often impossible because of the firm constricting cervical ring around the body of the uterus.

In the Haultain procedure⁽⁵⁾ this constricting ring is incised posteriorly and the top of the vagina opened. Correction of the inverted uterus is achieved by pushing upwards with a finger through the vaginal opening. In the Spinelli operation⁽¹⁸⁾ an incision by the vaginal route is made anteriorly in the cervix and uterine wall, after the bladder has been retracted upwards and the plica vesicouterina has been opened. The uterus is replaced to its normal position by pressure of two thumbs. Splitting the anterior wall of the uterus facilitates this maneuver. Principally similar is the Küstner operation except the incision is made posteriorly after opening the cul de sac.

Following replacement by either method the uterus can be restored by suturing the line of incision, or a hysterectomy can be carried out safely, with the uterus in its normal position. Consequently prophylac-

tic treatment with antibiotics and anticoagulant therapy should be considered in all cases.

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