

# COITAL INJURY REQUIRING INTERNAL ILIAC ARTERY LIGATION

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## ABSTRACT

*Profuse bleeding after voluntary sexual intercourse is an uncommon reason for admission to the gynaecological wards. Out of 12 such patients admitted to the Ipoh Hospital over a three-year period, one patient had life-threatening upper vaginal injury after coitus. Blood replacement and conventional suturing failed to arrest the bleeding. Bilateral internal iliac artery ligation promptly arrested further haemorrhage.*

*Vigorous intercourse increases intra-abdominal pressure in women causing tensing of the cul-de-sac, decreasing the elasticity of the posterior fornix, resulting in vaginal laceration. Bilateral internal iliac artery ligation produces a 'pelvic compartment hypotension' converting a high arterial flow system to that of a low one resembling venous flow. The useful role of this procedure to contain pelvic haemorrhage is discussed.*

**Keywords:** coital injury, internal iliac artery ligation

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## INTRODUCTION

Female coital injuries causing significant bleeding following voluntary sexual intercourse is not a common reason for admission to the gynaecological wards. A total of 12 patients were admitted for surgical management to the Ipoh Hospital between January 1992 and September 1995 due to coital injuries following the first sexual encounter between consenting individuals. Although serious injuries following sexual assault in children and adults have been reported, there have been no reports where bilateral ligation of internal iliac arteries have been reported. We report here, one such case.

## CASE REPORT

A 21-year-old Malay lady, weighing 56 kg, with a height of 150 cm, was referred from a District Hospital for bleeding from the genital tract on 26 June 1995.

She was a virgin with no previous history of bleeding disorder when she had coitus (coitus had taken place with the patient on dorsal position and the partner on the top without use of 'sex aids') the night of her wedding on 25 June 1995. Apparently, there was no forceful entry though bearable pain was experienced at entry. Sexual intercourse was not interrupted till profuse bleeding from the vagina was noted following withdrawal of the penis. She was immediately rushed to a district hospital on 26 June 1995 at 0505 hrs. A laceration of the posterior vaginal vault close to the posterior fornix was noted. This was sutured with interrupted catgut.

Haemostasis was not secured and vaginal packing was done at 1420 hrs. She was referred to our hospital for management after she was found to be bleeding continuously. At this stage two units of whole blood had been transfused. The haemoglobin was 7.2 gm%, white cell count was 7,600 with normal differential count. Platelets were 108,000  $\mu$ L and INR was 1.37. On 26 June 1995 at 1750 hrs, exploration of the vagina was done under

general anaesthesia. The vulva was normal. The vagina measured 7 cm from introitus to posterior fornix. The cervix was normal in size. The uterus was normal in size. The abdomen was soft with no evidence of haemoperitoneum.

A deep ragged laceration in the presence of interrupted catgut sutures was noted running transversely in the upper vaginal vault from right fornix to the left. Repeated interrupted sutures were inserted in an attempt at repairing the defect to control bleeding. Further troublesome bleeding warranted vaginal packing. However, within half an hour of the packing, the patient became hypotensive. Four units of whole blood, 4 units of fresh frozen plasma and 2 units of cryoprecipitate were transfused.

Since haemostasis was difficult with further sutures and a totally abraded vaginal vault, a laparotomy was done. The pelvis was normal. There were no penetrating injuries. Both internal iliac arteries were exposed and the anterior branches were ligated with Vicryl #0. Vaginal bleeding stopped promptly. Her coagulation screen at this stage was acceptable with INR at 1.76 and platelet count of 121,000  $\mu$ L.

The patient made an uneventful recovery. She was discharged from the ward on the fifth postoperative day. She was reviewed on 3 August 1995 in the gynaecology clinic. She had resumed coitus one week before review and did not encounter any bleeding. She did not give a history of vaginismus. Her menstrual cycles had resumed on 28 July 1995.

## DISCUSSION

Coital injuries are generally unusual. In fact, until the end of the 19th century, it was doubted that lesions could occur during coitus with common consent of both parties<sup>(1)</sup>. Most reviews of coital trauma refer to vaginal and perineal injuries. Genital disproportion particularly in children and young women, often following sexual assault in lower vaginal injuries and may be followed by severe injuries and even perforation into the peritoneal cavity.

Our patient had no bleeding disorders, was of average build, denied vaginismus and had coitus in the normal dorsal position with her partner on top. Couples assuming coital positions, such as dorsal decubitus position with hyperflexion of the thighs and sitting position may encounter unusually deep penetration causing lacerations. Though it was not possible to elicit this in our patient, vigorous intercourse may increase intra-abdominal pressure in the women causing tensing of the cul-de-sac with decrease of elasticity of the posterior fornix. Vaginismus may cause injury by shortening and narrowing of the vagina<sup>(2)</sup>. All

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these factors singly or in combination may lead to injury to the vaginal vault. Although it was difficult to elicit the factors leading to the injuries seen in this report, successful uneventful coitus six weeks after injury in our patient made it difficult to incriminate any of the aforementioned.

Continued deterioration of the patient following exploration and suture of the vaginal laceration should make one consider other injuries encountered following coitus. Haemoperitoneum as a result of coital injuries without associated vaginal injury was reported by Sterling<sup>(3)</sup> in 1990. Although our patient did not show signs of peritoneal irritation, it was difficult to exclude haemoperitoneum, especially when she was under general anaesthesia.

Repeated application of sutures, especially when the vagina is friable and abraded, warranted vaginal packing as an additional measure. The tamponade effect was inadequate, necessitating an alternative measure like ligation of the descending branches of the uterine artery or internal iliac artery.

Internal iliac artery ligation has been reported by the authors to contain pelvic haemorrhage<sup>(4)</sup>, especially in obstetric patients and in gynaecologic oncology surgery. However, this is the first time we have resorted to ligating both the anterior branches of the internal iliac arteries for coital injury.

Ligating the internal iliac arteries without division of the vessel with absorbable sutures like Vicryl is adequate in producing a 'pelvic compartment hypotension'. The pulse pressure is decreased by 80% distal to the ligation with concomitant reduction of blood flow by 48%<sup>(5)</sup>. The ultimate goal of converting a high arterial flow system to that of a low one resembling venous flow, is effectively achieved. This procedure has been usefully employed in extensive pelvic

haemorrhage where no specific feeding vessel is recognised for ligation amidst generalised oozing.

Recanalisation of the vessels following internal iliac artery ligation has been reported by Dubay et al<sup>(6)</sup>. This was expected to occur in our patient especially when absorbable sutures were used, without division of the vessels. A full-term pregnancy was reported by the senior author following bilateral internal iliac artery ligation using chromic catgut<sup>(7)</sup>.

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