Role of Trans-catheter Ovarian Vein Embolization In The Management of Symptomatic Chronic Pelvic Congestion In Females

Essay

Submitted By

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List of abbreviations

CCP ----------Chronic pelvic pain.
CIN ----------Contrast induced nephropathy.
CPC ----------Chronic pelvic congestion.
CT ----------Computed tomography.
DAP ---------- Dose area product.
F ----------French.
GnRH --------Gonadotrophin releasing hormone.
GSV ----------Great saphenous vein.
HRT ----------Hormonal replacement therapy.
IIV ----------Internal iliac vein.
IPV----------Incompetent pelvic vein.
IVC ----------Inferior vena cava.
LRV ---------Left renal vein.
MPA ---------Medroxy progesterone acetate.
MRI----------Magnetic Resonance Imaging.
MRV---------Magnetic resonance venography.
NSAIDS-----Non steroidal anti inflammatory drugs.
PCS ----------Pelvic congestion syndrome.
PID----------Pelvic inflammatory disease.
PVI----------Pelvic venous insufficiency.
ROV ---------Right ovarian vein.
STS ----------Sodium tetradecyl sulfate.
TCE----------Trans-catheter embolization.
TVUS--------Trans vaginal ultrasound.
US----------Ultrasound.
VV ----------Varicose vein.

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Introduction

Chronic pelvic pain (CPP) is assumed to affect approximately 30% of all females in child bearing period and it accounts for almost 20% of outpatient gynecological appointments. Causes of CPP are variable involving endometriosis, pelvic inflammatory disease (PID), pelvic and vulval varicosities, as well as many other causes. Despite the extensive diagnostic investigations and exploratory laparoscopic studies, the exact etiology of CPP remains rather elusive. Pelvic congestion syndrome (PCS) takes place when varicosities develop around the ovaries in a presence of CPP. Like lower limb varicose veins pelvic varicosities are assumed to result from dysfunctional valves of the veins, refluxing blood flow, with venous engorgement. Congested pelvic veins may be very painful and account for approximately 30% of cases of CPP ***(Darci Phillips et al., 2014).***

Chronic pelvic congestion syndrome (PCS) is associated with pelvic pain, dysmenorrhea, dysuria, and commonest dyspareunia. It is caused by incompetent pelvic veins (IPV). It was reported that about 70 % of females with PCS also have venous incompetency. In addition, IPV is associated in about 34 % of cases with varicosities in the perineum, thighs, and buttocks. This is mostly due to an extensive collaterals network connecting IPV with veins of the lower limbs ***(Zehra et al., 2006)***.

Surgical ligation has shown to be a rather effective method to decrease pelvic varicosities. However, a group of women experiences recurrence of varicosities after their surgery which is most probably due to reflux from iliac or perineal sources. Approximately 20% of surgical varicose treatments are performed in patients with varicose recurrence. Transcatheter venous Embolization in IPV can decrease the risk of recurrence of VV (ovarian and internal iliac veins), also it could potentially decrease the recurrence of varicosities in lower limbs before a new surgery ***(Luis et al., 2013)***.

Transcatheter embolotherapy, since it was introduced in 1993 by Edwards et al., has revolutionized the treatment of PCS ***(Edwards et al., 1993)***.

Since early 90's, trans-catheter venous embolization of the ovarian varices has been described by many authors is a safe approach offering symptomatic relief of pelvic pain in the most of cases ***(Patrizio Capasso, 1997).***

The procedure is usually performed by a 4F Cobra Head or Vertebral catheter and Embolization is done using large vascular coils, acrylic glue, sclerosant foam or a combination of them. During 90's, patients were treated with left ovarian vein sole embolization. Nonetheless, with this approach about 33% of patients experienced partial relief of their symptoms. By mid

2000s bilateral ovarian vein embolization became the technique of choice. However bilateral Embolization can be technically challenging, especially when the right ovarian vein is very small or non visualized. In these situations it is acceptable to embolize the left ovarian vein only as the right vein is mostly not responsible for symptoms. According to many studies TCE was found to carry technical success of about 98–100% cases with less than 8% recurrence rates. Improvement of symptoms occurs within the first 2 weeks and was recorded in 70–85% of treated patients ***(Arul Ganeshan et al., 2007).***

Aim of the Work

The aim of this work is to assess the technical success and short term clinical efficacy of trans-catheter ovarian vein embolization as a treatment for symptomatic pelvic congestion syndrome in women.

Chapter 1

Anatomy of The Pelvic Venous Drainage in Females

The venous system of the pelvis is responsible for taking deoxygenated blood from the pelvic viscera as well as pelvic walls back to the systemic main circulation. Analogous to pelvic arteries, External iliac vein mainly drains the lower limb, while the internal iliac vein drains the viscera of the pelvis, walls, gluteal region as well as perineum. Mostly, the major veins are mirror images of their arterial analogues. However, the smaller veins can vary from one individual to another ***(Lorenzo et al., 2017).***

Veins:

The deep circumflex iliac, inferior epigastric and pubic veins are pelvic tributaries of the external iliac vein. The external iliac vein is the cranial continuation of the femoral vein. The nomenclature of the vessel changes at the mid inguinal point, posterior to the inguinal ligament. The deep circumflex iliac vein is a product of the venae comitantes of the eponymous artery. It crosses the anterior surface of the external iliac artery before entering the external iliac vein. Inferior to the entry point of the deep circumflex iliac vein, the inferior epigastric vein enters the external iliac vein cranial to the inguinal ligament.

The pubic vein forms a bridge between the obturator vein and the external iliac vein. On the left side, the external iliac

vein is always medial to its corresponding artery. However, on the right, it starts out in a medial position and gradually becomes posterior as it gets closer to the point of fusion ***(Wes Channel et al; 2017).***

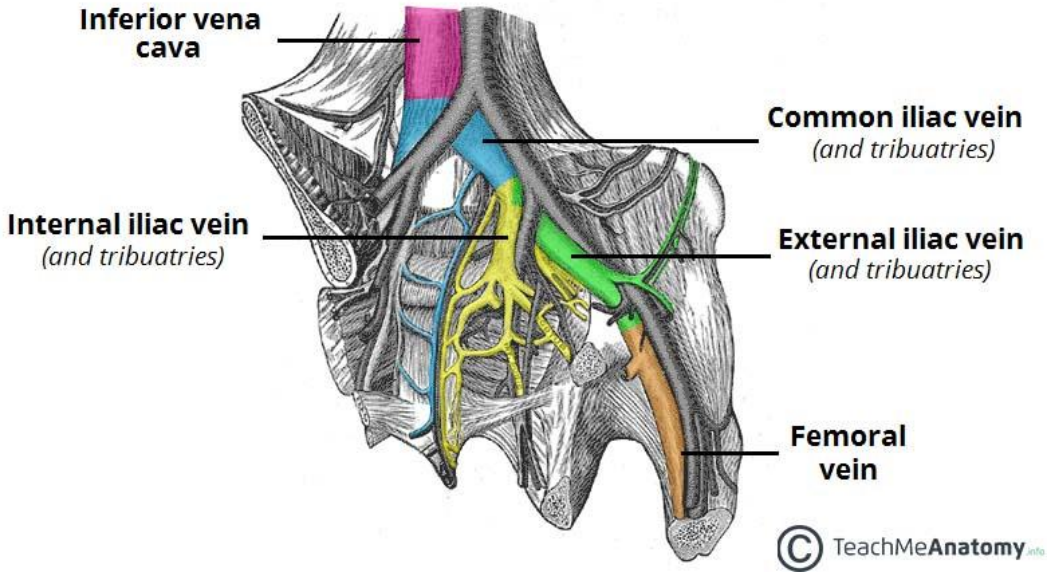

Fig 1: Overview of the venous drainage of the pelvis.
(Quoted from Wes Channel et al., 2017).

On the other hand, the internal iliac vein receives the middle rectal, obturator, lateral sacral, inferior gluteal and superior gluteal veins as tributaries. The obturator vein enters the pelvis by way of the obturator foramen, where it takes a posterosuperior route along the lateral pelvic wall, deep to its artery. In some instances, the vessel is replaced by an enlarged pubic vein, which then terminates in the external iliac vein. The superior and inferior gluteal veins are venae comitantes of their corresponding arteries. The tributaries of the superior gluteal veins are named as the branches of the corresponding artery ***(Catarina et al., 2017)***.