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ETIOLOGY, LIFESTYLE MODIFICATIONS AND COMPLICATIONS OF VARICOSE VEINS IN PREGNANCY

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ABSTRACT

Varicose veins cause a good deal of morbidity in our population these days. Prevalence of varicose disease was 68.46% within which 75 were pregnant women. This high Prevalence is principally caused by rise in the oestrogen and progesterone levels throughout gestation. The object of this study is to state the etiology, complications and possible life factors of varicose veins in gestation. Pregnancies play a significant role in onset and development of varicose veins in women. Changes to the venous system that occur throughout gestation are because of hormonal secretions and compression of iliac veins by gravid uterus. Progestin levels can dilate the veins. Taking necessary life style changes to reduce their appearance and prevent new one forming.

KEYWORDS: Varicose veins, Hormonal secretions, Pregnancy, Estrogen, Steroid levels, Gravid uterus.

INTRODUCTION

Varicose veins are elongated, dilated and tortuous veins. The word ‘varicose’ is derived from the Latin ‘varix’ which means twisted. Varices are sometimes classified into trunk, reticular and hyphen web types based on their size and anatomical distribution.[1] Varicose veins are unusually swollen veins that may bulge near the surface of the skin. They appear as blue, red or purple veins, sometimes look squiggly or rope like and are most likely show up on the legs; though in pregnancy it is possible to get them on lower pelvic area, buttocks, or

elsewhere.[2] A varicose vein (VV) is a frequently occurring disorder with a major impact on the life of the affected person and their family members. Varicose veins are present in about 10-15% of individuals in the general population of India.[3] **Why would varicose veins appear in your legs?** Legs muscles help push the blood in the leg veins back toward the heart. There are also one-way valves in the veins to make sure the blood doesn't flow backward and pool in the legs. Yet many people develop varicose veins in which the blood pools in one area subsequently stretching the walls of the veins. It is not known why some people get them and some do not although the tendency may be inherited. Varicose veins may become itchy, uncomfortable and painful. They are usually found in legs, genital area, and rectum (haemorrhoids are just a type of varicose veins). Varicose veins can happen on any area of the leg, but it's most common in the inner thigh and calf muscles because standing and walking puts the more pressure on these areas. Varicose veins are not considered a serious medical condition, but they may lead to serious problems. Varicose veins in the legs can be prevented with exercise such as swimming, walking or running. Nutrition also plays a role.[4]

Symptoms: varicose veins might not cause any pain. Signs of varicose veins might include:

- Veins those are blue or dark purple in color.
- Veins that seem twisted and bulging, they're usually looking like cords on the legs.

When painful signs and symptoms occur, they'll include:

- An aching or serious feeling within the legs.
- Burning, throbbing, muscle cramping and swelling within the lower legs.
- Worsened pain when sitting or standing for a long amount of your time.
- Itching around one or a lot of your veins.
- Skin discoloration around a venous blood vessel.[5]

In pregnancy

It has been known for several years that women had a higher risk of developing varicose veins. This was usually explained by the actual fact that women carry children, or explained that women simply have "weaker veins" than men do. However there's a hormonal explanation for why women develop varicose veins additional often than men do. Women are a lot of possible at risk as results of fluctuations in hormones. There are physiological states, like gestation, menopause and iatrogenic states, during which the level of female hormones

within the circulation is far from normal and those states are related to varicose veins. Within the present study female patients of varicose veins were screened with reliable and valid tools for distinguishing the etiology of varicose veins.[3]

Pregnancy is likely to be a serious causative consider the increased incidence of varicose veins in women which may in turn cause venous insufficiency and leg edema.[6] Increased blood volume, combined with inactive behaviour, contributes to be developing of varicose veins throughout gestation. Many women initial develop varicose veins – or notice that they worsen throughout pregnancy. You will have very little or no discomfort from varicose veins, or they'll make your legs feel heavy and aching. Varicose veins are a standard, sometimes harmless a part of pregnancy for a few women. They happen once the uterus applies pressure to the large vein (the inferior vein cava) that carries blood back to the heart from your feet and legs. A healthy woman bearing a normal-sized fetus, with an average birth weight of concerning 3.3 kg (7 pound 4 Oz), can increase her plasma volume by regarding 1200ml throughout gestation. There's very little increase throughout the first trimester, however there's progressive rise within the most blood volume at concerning 34 – 36 weeks, after that very little further increase happens.[7] The most increase depends largely on the size of the conceptus. It will increase concerning 1300 cc rather than 120 for higher- birth- weight babies and slightly additional with twins, triplets, and quadruplets. Varicose veins typically begin within the trimester and find worse as you close to delivery.

This is result of the increased pressure of the womb on the pelvic veins disrupts blood flow to the leg veins in pregnant women. Symptoms often worsen during third trimester of pregnancy because the heavy weight of the growing baby, which presses on the large blood vessels in the pelvis, altering blood flow. Due to gravity and increased blood volume, the lower extremities experience elevated pressure, dilating veins, which may be slowly transformed into varicose veins. About 30% women develop varicose veins during pregnancy.

In addition to increased blood volume, direct pressure on the iliac veins by the gravid uterus increase inefficient blood return by the veins and may damage venous valves. There is a hypothesis that some people inherit a weaker vein wall, which allows progressive venous dilation even at a normal venous pressure, and valve failure occurs as a secondary event. There are estrogens and progesterone receptors in the main saphenous vein that runs the length of the leg, although there function is not known. Most women with varicose veins in pregnancy can be reassuredthat pregnancy varicose vein pain will probably resolve after

pregnancy and any treatment other than the wearing of graduated compression stockings may not be needed (Stansby 2000).[8]

Are varicose veins in pregnancy ever serious?

Varicose veins might itch or hurt, and that they will be unsightly, however they are usually harmless within the short term. Treatment, if needed, will sometimes be delayed till when you've got your baby.

However, a little percentage of individuals who have varicose veins develops small blood clots close to the skin's surface (superficial venous thrombosis). Once this type of clot develops, the vein might feel hard and cord-like, and therefore the area around it may become red, hot, tender, or painful. That pregnancy varicose vein pain will most likely resolve once pregnancy.

Call your doctor or midwife if you think that you've got one in every of these clots as a result of they will be serious. Throughout pregnancy, they will be treated with warm compresses and can usually subside in a very few days or weeks. Sometimes the area surrounding a clot becomes infected. You will develop a fever or chills in this case, and you may got to be treated promptly with antibiotics.

Also, call your provider quickly if

- Either leg becomes severely swollen.
- You develop sores on your leg.
- The skin close to the veins changes color.

In rare cases, superficial venous thrombosis will progress to deep vein thrombosis (DVT), a lot of serious condition during which a clot develops in deep veins, usually within the legs, and will become inflamed or travel to the lungs and be critical.

Pregnancy makes DVT a lot of seemingly whether or not or not you've got varicose veins, however DVT is not common: Your probability of developing it – either throughout pregnancy or within the weeks when you provide birth – is regarding 1 in 1,600. (Women with clotting disorders, obesity, multiple gestations or who are on prolonged bed rest have a higher risk.)

If you develop DVT, you may don't have any symptoms, otherwise you might have unexpected, painful swelling in your ankle, leg, and thigh. it's going to hurt a lot of once your foot is flexed or once you are standing, and you will have a small fever as well. If you notice any of those symptoms, call your provider right away.

You may get to have an ultrasound examination of the affected area. And if you do have one in every of these clots, you will need to be hospitalized and treated with blood-thinning medication. Left untreated, the clot may break away and travel to the lungs, leading to a life-threatening condition referred to as a pulmonary embolism. Signs of a pulmonary embolism include shortness of breath, painful breathing, a cough (or expulsion blood), a panicky feeling, and a fast heartbeat.[2]

Etiology

What causes varicose veins during pregnancy?

As your uterus grows, it puts pressure on the large vein on the right womb of your body (the inferior vein cava), that will increase pressure in your leg veins. Veins are the blood vessels that return blood from your extremities to your heart, therefore the blood in your leg veins is already working against gravity. And once you are pregnant, the amount of blood in your body will increase, adding to the burden on your veins. Your progesterone level additionally rises, relaxing the walls of your blood vessels. Due to the gravity and raised blood volume, the lower extremities experience elevated pressure, dilating veins, which can be slowly transformed into varicose veins. You're additional possible to induce varicose veins if different members of your family have had them. They are a lot of common in women than men, and if you have got them, they have a tendency to get worse with every successive pregnancy and as you become old. Being overweight, carrying twins or other multiples, and standing for long periods can even cause you to more possible to get those.[2] Researchers don’t know the exact reason behind varicose veins; however certain things will result in or increase your chances of developing varicose veins. These include:

- Pregnancy
- Being female
- Long periods of standing
- Obesity
- Having a family member who has varicose veins
- Smoking

- Birth control pills or hormone replacement medications
- Being inactive
- Genetics
- Multiple pregnancies.[9]

Factors influencing varicose veins in pregnancy

- **Elevated pressure:** Raised blood volume early in pregnancy, following by fetal growth and weight gain, increases women's intra-abdominal pressure and central venous return, with the potential for the elevated pressure to lead to valve failure and development of varices (Beebe-Dimmer et al 2005).[10]
- **Hormones:** Hormonal fluctuations in early pregnancy strongly influence the development of varicose veins (Carr 2006; Lenkovic et al 2009).[11]

Conditions associated with varicose veins

Deep vein thrombosis happens regarding once in each 700 births. Though there's a risk for 6 months, 90% of occlusion happens within the 1st week once birth. Varicose veins are one among the various risk factors for occlusion throughout the primary six months afterbirth (Galambosi et.al. 2017). alternative documented risk factors for occlusion are caesarean, hypercoagulability/thrombophilia, cardiac and disease malady, obesity, physiological state diabetes, and disease, threatening premature birth, chorioamnionitis or alternative infection and invitro fertilization with gonad hyper stimulation syndrome. Anaemia is related to occlusion; however the anaemia is perhaps not what increases the chance. a lot of possible post partum bleeding leads to anaemia and also the post partum haemorrhage disturbs the balance of clotting factors and, therefore, the haemorrhage instead of the anaemia brings on occlusion (Galambosi et.al. 2017).[12] Thrombembolism when caesarean is one among the most causes of maternal death (Lai 2018).[13] May – Thuner syndrome (MTS), generally known as vein compression syndrome, primarily affects women between the ages of twenty and fifty. This involves restricted blood flow that successively causes pain, swelling of 10 time's varicose veins within the left leg. Haemorrhoids are other quite varicose vein that's aggravated by gestation. Haemorrhoids are best treated by cleansing with soap and water after gut movements, as a result of sweet and excreta attracts yeast – which may inflame you the area. Rue oil is extremely useful in claiming haemorrhoids so is zinc oxide ointment like Destin. A Russian suppository referred to as Procto -Oblipicha is extremely useful.[4]

Lifestyle modifications

There's no thanks to totally stop prevent veins. But up your circulation and muscle tone would possibly cut back your risk of developing varicose veins or getting more ones. an identical measures you you'll be {able to} want treat the discomfort from varicose veins at home will help stop varicose veins.

Thankfully, there are some simple steps you will need to enhance the blood flow in your legs. As a result, you will stop your varicose veins from getting worse. Try these things.

- **Exercise regularly**

Walk or swim for a minimum of AN hour per day. Your leg muscles are your biggest allies. Why? They help your veins push blood to the heart. This will be very useful since your muscles are working against gravity. Any leg exercises can help stop the appearance of recent varicose veins.

- **Maintain healthy weight**

You’re putting loads of stress on your legs if you are overweight or fat. Losing weight may additionally keep new varicose veins from forming. There are loads of benefits to losing weight aside from helping with varicose veins. It in addition reduces your risk of cardiovascular disease, stroke and type2 diabetes. • Eat a high-fibre, low-salt diet.

- **Elevate your legs whenever sitting**

This helps the blood will be ready to flow back toward your heart

- **Refrain from crossing your legs for long period of some time**

This helps your blood flow in legs

- **Avoid standing and sitting for long periods**

Remember a chance a clear stage a minimum of every 0.5 hour and get up and walk for a short whereas, even though it’s merely to the break room and back. This forces the leg muscles to move blood toward your heart quite once you’re in very inactive position

- **Avoid wearing high heels for long periods.**

This helps reduce the pressure on your legs

- **Avoid long standing whereas doing dishes or cooking**

If you've got need to stand, like once doing dishes or cookery, rock from heel to toe to keeps blood moving.

- **Avoid wearing tight fitting clothes**

This can place loads of pressure on your legs, which could produce varicose veins worse.

- **Use compression stockings** if varicose veins begin, to prevent a lot of Pressure on the ankle and lower leg helps blood go toward your heart [5, 14, and 15]

Complications

Ulcers

Painful ulcers could form on the skin close to varicose veins, significantly close to the ankles. A discolored spot on the skin sometimes begins before an ulcer forms. See the doctor right away if you think you have got developed an ulcer.

Blood clots

Occasionally, veins deep within the legs become enlarged. In such cases, the affected leg could become painful and swell. Any persistent leg pain or swelling warrants attention as a result of it's going to indicate a blood clot – a condition referred to as thrombophlebitis.

Deep vein thrombosis

Which might cause pain and swelling within the leg and will cause serious complications like pulmonary embolism.

Bleeding

Occasionally veins very near to the skin could burst. This sometimes causes solely minor haemorrhage. However any haemorrhage happens it needs medical attention. Varicose veins close to the surface of your skin will generally bleed if you cut or bump your leg. The haemorrhage could also be tough to prevent. You should change posture, raise your leg and apply direct pressure to the wound. Get immediate medical recommendation if this doesn't stop the haemorrhage.[5]

DISCUSSION

It is identified that almost all of the pregnant women were developing varicose veins throughout gestation. Within which prevalence of unhealthy illness was 68.46% within which seventy five were pregnant women.

There is an absence of proof concerning treatments for varicose veins that are effective and safe in gestation. Existing systematic reviews are based on tiny RCTs with a high risk of bias (Bamigboye & Hofmeyr 2006; Bamigboye & Smyth 2007). The proof on vulvar varices is just too restricted for conclusions to be drawn.[16,17]

Varicose veins are sometimes bulging, blueish cords running just to a lower place the surface of your skin. They almost always have an effect on legs and feet. Visible swollen and twisted veins – generally enclosed by patches of flooded capillaries referred to as spider veins – are thought-about superficial varicose veins. Though they will be painful and disfiguring, they're sometimes harmless. Once inflamed, they become tender to the bit and might hinder circulation to the purpose of causing swollen ankles, itchy skin, and aching within the affected limb.[18]

Besides a surface network of veins, your legs have an internal, or deep, blood vessel network. On rare occasions, an internal leg vein becomes varicose. Such deep varicose veins are sometimes not visible, however that'll cause swelling or aching throughout the leg and will be sites wherever blood clots can form.[18]

Varicose veins are a comparatively common condition, and for several individuals they're a family trait. Women are a minimum of doubly as seemingly as men to develop them.[18]

Estrogen and progesterone are female hormones that play a vital role in fertility and period. These hormones may additionally be part to blame for why women are a lot of possible to develop varicose veins than men. These hormones cause the muscles that control the movement of blood in your veins to relax.[19]

The steroid hormone in contraception pills will weaken your vein valves. Once these valves weaken and don't properly shut, it will prevent blood from flowing back to your heart. Blood will then leak back to the lower a part of your vein.[20]

Given the frequent observation of a positive case history of varicose veins in some studies, scientific effort has led to the identification of specific genes which will be joined to venous function. One study investigated the heritability of blood vessel perform measured by impedance plethysmography in forty six twin pairs. Once comparing the concordance between monozygotic and dizygotic twins using a path modelling approach, the study concluded that the unadjusted heritability was 60% ($P<0.05$) for venous capacity and 90% ($P<0.05$) for venous compliance. Once adjustment for age and sex, the heritability was calculable to be 30 minutes for venous capability, whereas blood vessel compliance remained unchanged at 90th.[21] This study suggests that venous compliance is extremely dependent on genetic composition and an individual carrying the condition loci susceptibility have a higher

risk of developing a venous illness. Altered venous tone might functionally have an effect on the vein directly by contributing to venous noncompliance and a reduced venous capacity leading to blood stasis, raised intraluminal pressure, and raised vein wall tension. This diastolic force has been considered to initiate the cellular and extracellular changes seen in varicose veins.[22] Some studies have supported the theory that the primary initiation of varicose vein formation occurs in smooth muscle cells.[23] Down regulation of desmuslin gene expression has been noted in the smooth muscle cells of incompetent varicose veins. The desmuslin gene is located at chromosome 15q26.3 and encodes the protein desmuslin, which belongs to intermediate filament protein family and is located in the smooth muscle cell cytoplasm.[24,25] Intermediate filament protein complexes provide strength and integrity to the smooth muscle cell wall.[24] Breakdown of smooth muscle cell fibers has been described in their incompetent vein walls and it has been stipulated that there separation of muscle fibers will be cause loss of vascular tone lead to venous dilatation.[26]

Studies also suggest that the down regulation of desmuslin in the vein wall may be responsible for a smooth muscle cell phenotypic switch from the contractile to synthetic phenotype and hence cellular weakness. In a present study, desmuslin gene knockdown in cultured human saphenous vein smooth muscle cells by RNA interference led to a decrease in the expression of smooth muscle cell proteins that regulate their phenotype. An increase in matrix metalloproteinase-2 and collagen activity has also been reported, further supporting the proposed role of desmuslin in smooth muscle cell differentiation and structural integrity in veins.[29]

Thrombomodulin, involved in the control of thrombus formation during the regulation of thrombin, is thought to be associated with the varicose veins. In one of case–control study involving 327 patients with their history of venous thromboembolism (deep venous thrombosis or pulmonary embolism) and 398 control subjects, thrombomodulin mutation (−1208/−1209 TT deletion) was associated with their history of the varicose veins.[27] However, because of this study primarily examined the biological risk factors of deep venous thrombosis, further studies will begin required to ascertain the involvement of thrombomodulin in primary varicose veins.

It is necessary to notice that variety of studies have demonstrated variations between varicose and nonvaricose veins within the expression of various different genes as well as structural genes regulating the extracellular matrix (ECM), cytoskeletal proteins, and myofibroblasts.[31]

Significantly, it remains unclear if the differential expression of those genes could be a cause or the result of varicosities.

If smoking has weakened your veins' walls and damaged the unidirectional valves within them, blood might begin to pool, particularly in your legs. The pooled blood causes the veins to indicate through the skin and sometimes even bulge, a condition known as varicose veins.[32]

In a majority of women, varicose veins developed during gestation can begin to recede and fully disappear within 3 months. However, in some cases, the varicose veins might persist, and in these cases, it's ideal to consult a vascular specialist who can assess the veins and supply offer treatment choices.[33]

Although there's no 100 percent successful ways in which to stop varicose veins, there are some things that you simply will do to reduce your risk of developing varicose veins.[34]

The following changes can help prevent varicose veins from forming

Regular exercise/staying active.

Maintaining a healthy body weight

Elevating your legs

Refraining from crossing your legs for more amount of time

Elevate your legs whenever you will be resting or sleeping.

As we mentioned earlier, the best thing you can do to prevent varicose veins is to stay active and keep an eye on your weight. Maintaining a healthy BMI can lower the pressure on your legs.[34]

Medical experts also recommend refraining from sitting or standing in one position for more amount of time of time. Being in the same position for long period of time isn't good for keeping your blood circulating.[34]

CONCLUSION

We conclude that taking necessary lifestyle changes can prevent varicose veins during pregnancy such as being active, exercising regularly. Decreasing usage of birth control pills, avoiding immediate pregnancies, and being active during multiple pregnancies can prevent varicose veins.

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