

Deep Vein Thrombosis of the Lower Limb Complicating a Pregnancy in the First Trimester under AKV Treatment: 1 Case Report

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Abstract

Case Report

The occurrence of deep vein thrombosis during pregnancy is a rare situation with an incidence of 0.6 to 1 per 1000 pregnancies. This situation leads to diagnostic and especially, therapeutic difficulties; its occurrence in the first trimester, especially in a woman from disadvantaged backgrounds, is an additional therapeutic challenge. We report a case of deep vein thrombosis of the lower limb in a pregnancy at 6 weeks' gestation in a 26-year-old pregnant woman, a primigravida with one living child. The diagnosis has been suspected on the basis of clinical signs and D-dimer test, and confirmed by venous Doppler ultrasound. The initial treatment has been mainly based on anticoagulation with anti k-vitamin (warfarin sodium), with an effective dose, throughout the pregnancy. The enoxaparin at a therapeutic dose initially introduced was interrupted for financial reasons, forcing the medical team to introduce AVK with the informed consent of the patient and her family, giving priority to the mother to ensure continued care in these conditions. The mode of delivery was vaginal and the maternal prognosis was good with normal postpartum period. The fetal prognosis was also good with the birth of a healthy newborn.

Keywords: Pregnancy, venous Thromboembolic disease, anti k-vitamin, low socio-economic status, maternal and foetal prognostic.

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INTRODUCTION

Pregnancy is a well-known risk factor for venous thromboembolism (VTE), Its occurrence is 0,6 to 1 per 1000 pregnancies [1]. Physiological changes in the maternal body during pregnancy, including an increase in pro-coagulant factors, a decrease in S protein and inhibition of fibrinolysis, result in a well-known increased risk of deep vein thrombosis [2].

In our low-income countries, the association of venous thrombosis and pregnancy is a serious matter, both diagnostically and therapeutically. The diagnosis, particularly etiological diagnosis, is often hampered by the unavailability of some tests and their high cost when they are available. The cost of first-line treatment with low-molecular-weight heparin throughout pregnancy is beyond the reach of most patients and their families [3].

We report 1 case of deep vein thrombosis of the lower limb occurred in the 1st trimester of pregnancy in a 26-year-old woman treated with AKV in the cardiology department of the Gabriel Touré University Hospital and the gynaecology and obstetrics department of the commune VI reference health center in Mali.

CLINICAL OBSERVATION

She was a 26-year-old, bigravidae, primiparous with one living child without any known medical or surgical history, who came on her-self for routine prenatal follow-up. Her clinical and gynecological examination was normal. The prenatal laboratory test was normal (Figure 1).



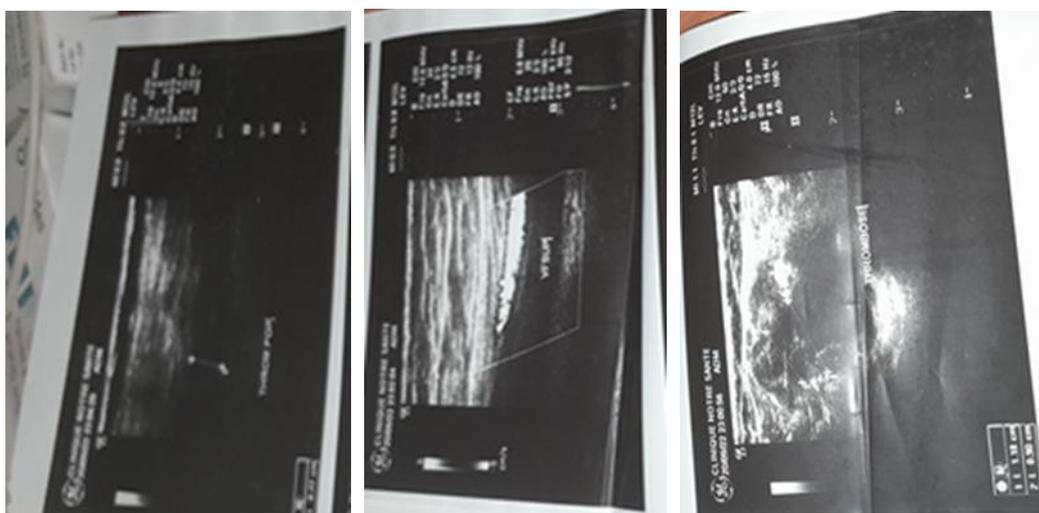
GROSSESSE MONO-EMBRYONNAIRE INTRA-UTERINE EVOLUTIVE DE
06 SA+05 JOURS D'AGE ECHOGRAPHIQUE SANS ANOMALIE
NOTABLE.
DPA : 19/04/2023 + OU - 10 JOURS.

Evolutionary intrauterine mono-embryonic pregnancy of 06 weeks of amenorrhea + 5 days of ultrasound age without notable anomaly. Estimated date of delivery April 19, 2023

Figure 1: Ultrasound image of an evolving pregnancy at 5 SA

During the follow-up, she developed a painful swelling of the left leg, even though, the pregnancy was only at 06- weeks' gest. Biological tests showed: The haemogram showed a white blood cell count of $4.5 \times 10^3/\text{mm}^3$, a red blood cell count of $3.64 \times 10^3/\text{mm}^3$, a haemoglobin level of 13.3 g/dl and platelets of $372 \times 10^3/\text{mm}^3$. Fasting blood glucose was 0.83 g/l, toxoplasmosis test negative, AgHBS negative and creatinine normal at 55.36 micro mol/L. transaminases

levels are normal (ASAT=21.08 IU/L and ALAT=30.99 IU/L) and C-reactive protein was elevated to 29.6 mg/L (< 6 mg/L). D Dimers were increased to 2990 ng/mL (< 500 ng/mL), baseline INR to 1.09 and aPTT to 13.8 seconds (for a reference value of 12.9 seconds). Ionogram and renal function tests were normal. Venous Doppler ultrasonography of the lower limbs revealed sub-occlusive venous thrombosis of the left lower limb (Figure 2).



Aspect écho-Doppler d'une thrombose veineuse extensive du membre inférieur gauche (thrombose veineuse profonde et superficielle) dont la tête du thrombus est fémorale commune distale.

Echo-doppler appearance of extensive venous thrombosis of the left lower limb (deep and superficial venous thrombosis with distal common femoral head)

Figure 2: Ultrasound image of extensive vein thrombosis in the left lower limb

The diagnosis of DVT of the left lower limb has been confirmed on the basis of clinical and paraclinical findings; a deep vein thrombosis, complicating a first-trimester pregnancy. The patient has been initially treated with low molecular weight heparin (enoxaparin 100 IU/kg every 12 hours subcutaneously).

But we have faced with the problem of solvency. The patient and her family were unable to bear the financial cost and we had no other avenues of recourse to ensure continuity of care while guaranteeing

safety for both the mother and the fetus. We had to make a difficult decision, giving priority to the mother. We therefore initiated anti K-vitamin therapy with the full knowledge and informed consent of the patient and her family. She has been treated with warfarin sodium up to 3 weeks before the theoretical delivery date, with regular INR monitoring, clinical and ultrasound surveillance. We reintroduced enoxaparin at a therapeutic dose during the last 3 weeks of pregnancy. The Treatment has been well tolerated, with clinical and ultrasound improvement (figure 3).

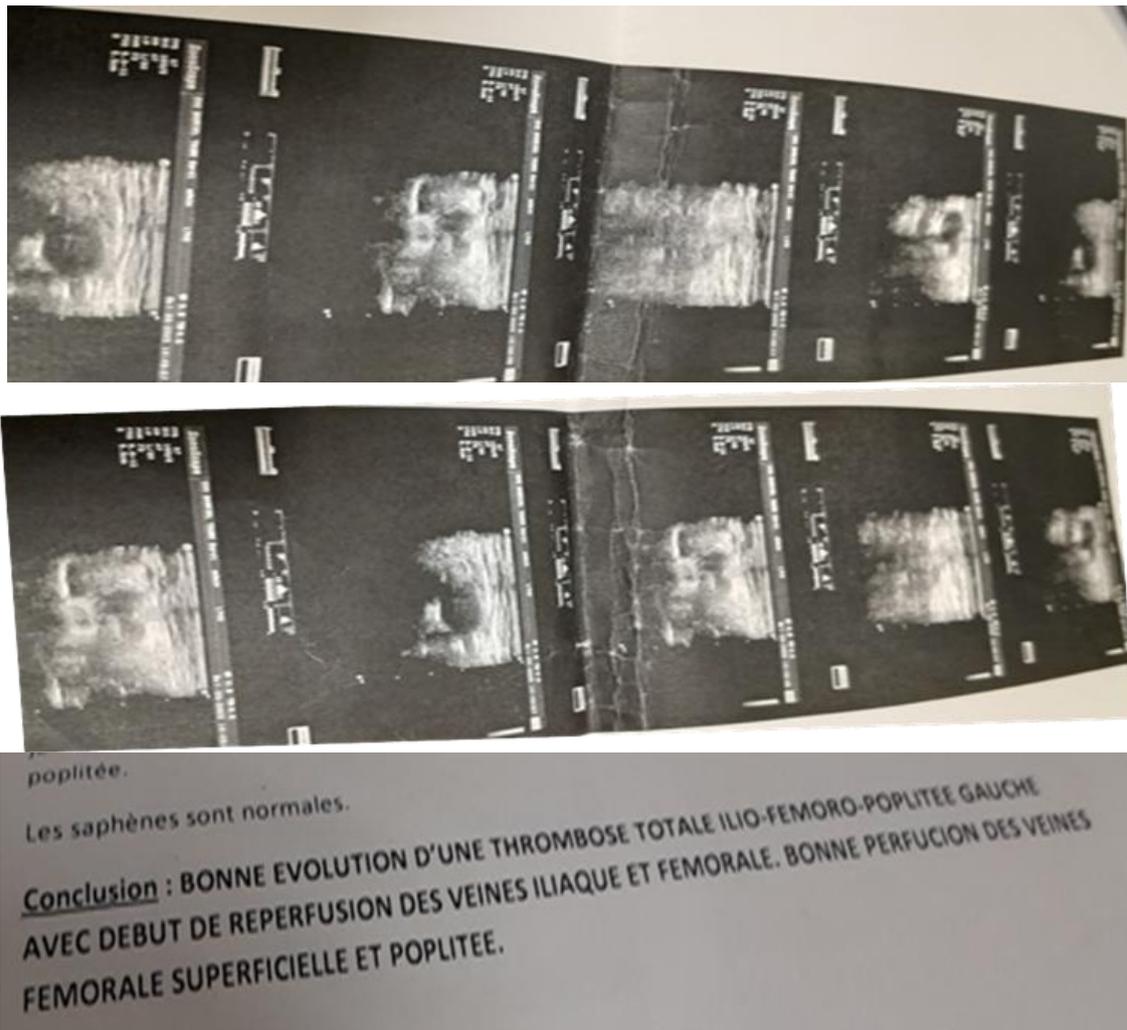


Figure 3: Good evolution of a total left iliofemoro-popliteal thrombosis with initial reperfusion of the iliac and femoral veins. good perfusion of the superficial femoral and popliteal veins

In collaboration with us, the gynecology-obstetrics team at the Commune VI referral center continued prenatal follow-up.

Pregnancy progressed normally to term (figure 4) and the patient gave birth vaginally; a male newborn

weighing 3215g, height 48 cm, head circumference 35 cm, chest circumference 33cm APGAR: 9/10 and 10/10 at 1 and 5 minutes.

Postpartum period was normal.



Figure 4: This is a 2nd-trimester intrauterine mono-fetal pregnancy of 19 weeks of amenorrhea, with strictly normal ultrasound examinations of the cord, amniotic fluid and growth

DISCUSSION

This observation is a clinical, biological and radiological illustration of a deep vein thrombosis complicating 06 week of amenorrhea pregnancy in a 26-year-old second gesture with no known personal pathological history in a Context of low socio-economic level.

The occurrence of deep vein thrombosis during pregnancy is a rare situation, although pregnancy is a well-known circumstance favoring the occurrence of thromboembolic events [4]. Pregnancy alone brings together the 3 elements of Virchow's triad, especially between the 25th and 29th week of gestation [5]. Hypercoagulability is known to be a major risk factor contributing to thrombosis during pregnancy, with an increase in most coagulation factors (I, V, VII, VIII, IX, X, Willebrand factor) and a progressive decrease in fibrinolytic capacity [5]. VTE can occur in all trimesters of pregnancy and in the post-partum period. The daily risk of VTE increases 5 to 10 times during pregnancy [1]. In the case of our patient, DVT occurred during the 1st trimester.

The risk of thrombosis also increases when pregnancy is associated with other factors, such as estrogen-progestogen contraception prior to pregnancy, sickle cell disease or constitutional coagulation inhibitor deficiencies, whether antithrombin III, C protein or S protein [6].

Our patient's haemoglobin electrophoresis was normal, and there was no history of contraception or thrombophilia in her family. However, a more thorough

etiological research was not carried out, as our patient and her family were unable to afford it.

The clinical presentation of DVT during pregnancy is different from that of patients who are not pregnant. The left leg is affected in over 80% of cases [1]. our patient had left leg involvement. Pregnant patients are much more likely to present isolated thrombosis of the iliac and/or femoral vein. That's to say thrombosis unrelated to the contiguous extension of a thrombus into the calf. The thrombus was located in the iliofemoral vein.

The most common clinical signs are unilateral swelling of the lower limb and difficulty in walking; hence the need for easy biological and radiological tests. The main diagnostic test is Doppler ultrasound, but if ultrasound is normal and clinical suspicion is still present, don't hesitate to ask for an MRI. MRI is also useful for determining the true extent of DVT in the pelvis or abdomen, which may influence the medical care [5]. There is a physiological increase in D dimers during pregnancy, and its negativity does not formally eliminate the diagnosis [7].

In our case, the diagnosis was suspected on the basis of clinical signs and confirmed by Doppler ultrasound.

Anti K-vitamin drugs are contraindicated throughout pregnancy, but are authorized in the post-partum period. They are generally started between the 2nd and 5th day post-partum [3]. In the first trimester, they can cause congenital anomalies. In the 2nd and 3rd trimesters, they can lead to fetal loss, fetal hemorrhage,

a high risk of bleeding during delivery, and neurodevelopmental disorders [3].

Low-molecular-weight heparins (LMWH) in therapeutic doses remain the treatment of choice during pregnancy, and anticoagulation should be continued for up to 6 weeks after delivery, with a minimum total duration of 3 months [3]. However, prolonged anticoagulation throughout pregnancy is costly,

In our patient's case, treatment with LMWH was initiated as a first-line treatment, but the patient and her family were unable to bear the financial cost. This is the socio-economic reality in our countries without adequate health coverage. Because of that situation revised our therapeutic strategy. The decision to introduce AKVs was considered as the lesser of two evils, as it was not possible to ensure continuity of care in any other way. This was done after wide consultation and with the informed consent of the patient and her family, giving priority to the mother, while remaining vigilant about maternal and fetal complications that may arise.

Sodium warfarin at an effective dose every 24 hours, with regular INR measurement and wearing of compression stockings, was the treatment chosen for our patient, followed by henoxaparin at 100 IU/kg every 12 hours 21 days before delivery and resumption of the AKV 72 hours later, for a period of 3 months.

In general, the management of childbirth requires a multidisciplinary approach and depends on local and patient-specific conditions. Several options are available: either expectant waiting for spontaneous delivery with temporary interruption of LMWH, or prophylactic caesarean section [3].

In our patient's case, the mode of delivery was spontaneous, and the postpartum period was normal for both mother and newborn. This observation presents an obvious clinical and practical interest. The patient had no risk factors for thrombophilia, and the VTE occurred at 06 weeks' gestation. In general, the risk of DVT is highest between 25 and 29 weeks' gestation [5], but thromboembolic events can occur at any stage of pregnancy [1-4].

The diagnosis should be suspected in the event of painful lower limb symptoms in pregnant women, particularly between 25 and 29 weeks' gestation, but our data insist that the diagnosis of DVT should be made as soon as pregnancy is confirmed.

About the treatment, despite the controversies, our observation prompts us to open the debate on the using of AKVs in the 1st trimester of pregnancy in special situations such as ours, where the choice had to be made to save the mother first and hope to save the fetus too.

CONCLUSION

Deep vein thrombosis of the lower limb is a rare complication of pregnancy. Clinical presentation and laboratory findings are often non-specific, making diagnosis difficult. Treatment and prevention of VTE in this population are limited by the need to ensure the well-being of both fetus and mother. This therapeutic constraint means that the cost of treatment is often beyond the reach of patients and their families in countries without universal medical coverage. This can lead to difficult therapeutic choices, requiring a multidisciplinary approach to ensure continuity of care.

Conflict of Interest: The authors declare no conflict of interest.

Authors' Contributions: Full participation of authors.

REFERENCES

- GROSSESSE : DIAGNOSTIC DE TVP ET D'EP : © Thrombose Canada, 2021. Page 1 de 7.
- Madar, H., Brun, S., Coatleven, F., Nithart, A., Lecoq, C., Gleyze, M., ... & Sentilhes, L. (2017). Pour une prescription ciblée de l'aspirine. *Gynécologie Obstétrique Fertilité & Sénologie*, 45(4), 224-230.
- Diaouga, H. S., Yacouba, M. C., Madeleine, R., Garba, M. O., Idi, N., Nayama, M., & Diaouga, H. S. (2023). Cas clinique Multiple thrombose veineuse profonde du membre inferieur compliquant une grossesse. A propos d'une observation clinique Multiple deep vein thrombosis of the lower limb complicating a pregnancy: A case report. *Ann. Afr. Med*, 16(3).
- Kourlaba, G., Relakis, J., Kontodimas, S., Holm, M. V., & Maniadakis, N. (2016). A systematic review and meta-analysis of the epidemiology and burden of venous thromboembolism among pregnant women. *International Journal of Gynecology & Obstetrics*, 132(1), 4-10.
- Devis, P., & Knuttinen, M. G. (2017). Deep venous thrombosis in pregnancy: incidence, pathogenesis and endovascular management. *Cardiovascular diagnosis and therapy*, 7(Suppl 3), S309-S319.
- Calderwood, C. J., Jamieson, R., & Greer, I. A. (2007). Gestational related changes in the deep venous system of the lower limb on light reflection rheography in pregnancy and the puerperium. *Clinical radiology*, 62(12), 1174-1179.
- Torkzad, M. R., Bremme, K., Hellgren, M., Eriksson, M. J., Hagman, A., Jörgensen, T., ... & Kålebo, P. (2010). Magnetic resonance imaging and ultrasonography in diagnosis of pelvic vein thrombosis during pregnancy. *Thrombosis research*, 126(2), 107-112.