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AN UNUSUAL CASE OF BLINDNESS

General Medicine

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ABSTRACT

SUPERIOR OPHTHALMIC VEIN THROMBOSIS (SOV) is an uncommon orbital pathology that can present with sudden onset proptosis, conjunctival injection, and visual disturbance. SOV thrombosis is frequently secondary to a cavernous sinus pathology. A 55 year old female who was previously diagnosed to have covid 19 RTPCR Positive pneumonia presented with unilateral proptosis of right eye with decreased vision , diagnosed to have Right Superior ophthalmic vein thrombosis which was considered to be late post covid sequel secondary to coagulopathy. She was managed conservatively. A careful history and clinical evaluation can help diagnose such rare disorders and initiate appropriate therapy.
BACKGROUND The etiology of SOVT can be broadly categorised as septic and aseptic. Risk factors implicated in the development of SOVT contribute to at least one of the elements comprising the Virchow's triad (vascular damage, stasis, and hypercoagulability) Apart from orbital diseases, certain systemic factors can be attributed to the development of SOVT. These include hyper coagulable states ,inflammatory diseases ,systemic malignancies (leukaemia, lymphoma, and multiple myeloma), and amyloidosis.

KEYWORDS

Superior ophthalmic vein thrombosis, COVID-19, CT Angiography, D dimers

CASE REPORT
A 55 year old female patient presented to emergency room with complaints of

1)proptosis of the right eye associated with conjunctival injection
2)pain during eye movements
3)loss of vision of right eye and
4) restriction of eye movements

since 1 week
Patient previously had cough with expectoration and shortness of breath one month back for which she consulted a pulmonologist when she was diagnosed to have COVID -19 positive pneumonia for which she was hospitalised and used medication.

At the time of admission :-
Vitals-
Bp 100/70mm hg
PR 82/min
Spo2 98% with room air
Temperature 98.7f
On examination, the best-corrected visual acuity in both eyes was 20/20.
Intraocular pressure in the right eye was 14 mmHg and in the left eye 12 mmHg
On Hertel's exophthalmometry, a 4 mm axial proptosis right eye was noted
Gonioscopy showed open angles in both eyes.

Laboratory investigations revealed
CBC with smear showed neutrophilic leucocytosis.
Renal function tests and liver function tests – within normal limits
Serum electrolytes- within normal limits
D -dimers – 8000 ng/ ml
PT – INR APTT – within normal limits
USG of the orbit revealed features of orbital cellulitis

A dual phase CT angiography of the brain and orbits showed that the cavernous sinuses were symmetrical in appearance, with a clear-cut filling defect in the enlarged right SOV in the venous phase.

In view of the lack of involvement of the cavernous sinus, a diagnosis of unilateral isolated SOVT was made which was secondary to COVID-19 coagulopathy.

DISCUSSION
isolated SOVT (SOVT in the absence of cavernous sinus pathology) is an extremely rare entity.

Risk factors implicated in the development of SOVT contribute to at least one of the elements comprising the Virchow's triad (vascular damage, stasis, and hypercoagulability)

The etiology of SOVT can be broadly categorised as septic and aseptic.Septic causes include infectious diseases such as orbital cellulitis, paranasal sinusitis, and septic cavernous sinus thrombosis with the extension of the thrombus into the SOV, whereas aseptic causes include spontaneous thrombosis of the dural cavernous fistula, tumours of the cavernous sinus or the orbit, and Tolosa–Hunt syndrome Apart from orbital diseases, certain systemic factors can be attributed to the development of SOVT. These include hyper-coagulable states (use of oral contraceptive pills, pregnancy, thrombocytosis, sickle cell trait, and hereditary hemorrhagic telangiectasia), inflammatory diseases (Graves' disease, systemic lupus erythematous, sarcoidosis, Behçet syndrome, and amyloidosis), systemic malignancies (leukaemia, lymphoma, and multiple myeloma), and amyloidosis.

Contrast-enhanced MR venography or dual-phase CT angiography helps confirm the diagnosis of isolated SOVT by ruling out shunting lesions such as CCF, thrombus extension from the cavernous sinus, and sino-orbital infections.

The most common pattern of coagulopathy observed in patients hospitalized with COVID-19 is characterised by elevations in fibrinogen and D-dimer levels, and mild prolongation of PT/aPTT. This correlates with a parallel rise in markers of inflammation (e.g. CRP). Unlike the pattern seen in classic DIC from bacterial sepsis or trauma, prolongation of the aPTT and/or PT is minimal, thrombocytopenia is mild (platelet count ~100 x109/L), and lab results

supporting microangiopathy are infrequent.

Worsening of these parameters, specifically the D-dimer, indicates progressive severity of COVID-19 infection and predicts that more aggressive critical care will be needed.

Thromboprophylaxis with LMWH is recommended for all hospitalized COVID-19 patients in the absence of bleeding, despite abnormal coagulation tests, and held only if platelet counts are less than 20 - 30 x 109/L, or fibrinogen less than 0.5 g/L. Abnormal PT or a PTT is not a contraindication for pharmacological thromboprophylaxis. Mechanical thromboprophylaxis should be used when pharmacological thromboprophylaxis is contraindicated.

CONCLUSION

Isolated superior ophthalmic vein thrombosis is a rare entity. Covid-19 pneumonia leads to coagulopathy which leads to venous/arterial thrombosis , manifested as right eye SOVT in this patient.

Early detection and early intervention can prevent life threatening complications.

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CONFLICT OF INTEREST- NIL
CONSENT – Consent was taken

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