# Rapidly evolving necrotic skin lesions of the face

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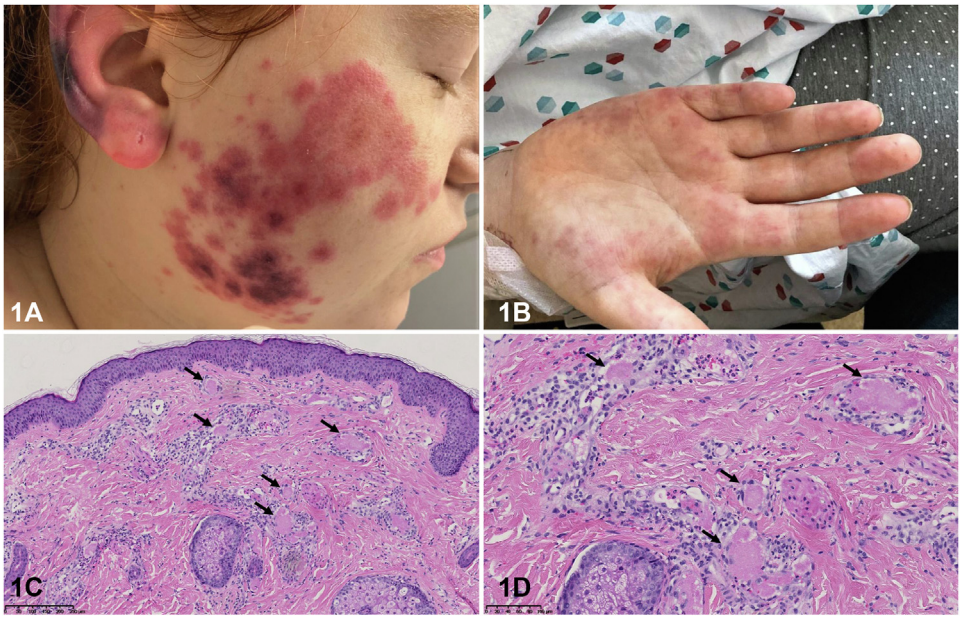
***Key words:*** antiphospholipid syndrome; APS; catastrophic antiphospholipid syndrome; CAPS; necrosis.




## CASE DESCRIPTION

A 21-year-old woman presented with a 1-week history of menorrhagia, diffuse persistent abdominal and leg pain, fever, and rapidly evolving necrotic skin lesions of the face. Her medical history included antiphospholipid antibody syndrome for which she had been under chronic treatment based on rivaroxaban and a progestogen-only contraceptive pill until she had chosen to interrupt both treatments (respectively 2 weeks and 2 months earlier) in order to get pregnant. On examination, she had retiform infiltrated necrotic maculopapular lesions (Fig 1, *A*) of the ears, the cheeks and the right shoulder associated with livedo racemosa of the legs, arms and palms (Fig 1, *B*). A skin biopsy was performed (Fig 1, *C* and *D*). Laboratory findings included microcytic anemia (grade 4) and thrombocytopenia (grade 3). SARS-CoV-2 RT-qPCR on nasopharyngeal swabs was negative. An early thoraco-abdominal CT-scan revealed signs of colic and adrenal ischemia in the abdominal portion, while thoracic portion was normal.

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**Question 1: What is the most likely diagnosis?**

**A.** Disseminated intravascular coagulation (DIC)

**B.** Meningococcemia

**C.** Thrombotic vasculopathy in the context of severe SARS-CoV-2 infection

**D.** Henoch-Schönlein purpura

**E.** Catastrophic antiphospholipid syndrome (CAPS)

**Answers:**

**A.** Disseminated intravascular coagulation (DIC) − Incorrect. Acute DIC evolves within hours or days and induces mainly hemorrhagic manifestations. It is associated with prolonged prothrombin time (PT) and activated partial thromboplastin time (aPTT), which was not observed in our patient.

**B.** Meningococcemia − Incorrect. Meningococcal meningitis presents as rapidly evolving diffuse petechiae associated with high fever, neck stiffness, photophobia, confusion, headache and vomiting. Clinical evolution over 1 week, the absence of meningeal symptoms and the preferential location of the necrotic lesions on the face ruled out this diagnosis.

**C.** Thrombotic vasculopathy in the context of severe SARS-CoV-2 infection − Incorrect. Acro-ischemic lesions secondary to the systemic consequences of severe or critical SARS-CoV-2 infection mainly present as peripheral cyanotic lesions and reticulated livedos. SARS-CoV-2 RT-PCR on nasopharyngeal swabs was negative and thoracic portion of thoracoabdominal CT-scan was normal.

**D.** Henoch-Schönlein purpura − Incorrect. Henoch-Schönlein purpura presents as symmetrical palpable purpura, predominantly on the lower limbs and buttocks. It is much more common in children. The adult form, which is rare, can be responsible for severe renal, digestive, joint and skin involvement.

**E.** Catastrophic antiphospholipid syndrome (CAPS) − Correct. CAPS refers to a rapid progression of the antiphospholipid antibody syndrome (APS) leading to the onset of multiple thrombotic events. The association of quasi-simultaneous multiple organ/tissue failure, histopathological images showing diffuse microthrombosis of dermal and hypodermal vessels (Fig 1, *C* and *D*), and history of APS, was consistent with this diagnosis. This potentially lethal syndrome is observed in approximately 1% of patients with APS.[1] Triggers of CAPS include infections (49% of the cases), surgical procedures (17%), malignancies (16%), anti-coagulation withdrawal or low international normalized ratio (8%), pregnancy complications (8%), drugs (5%), and sequelae of systemic lupus erythematosus (3%).[1] In the first descriptions of CAPS, the mortality risk was up to 50% of patients, but the most recent data from the "CAPS registry", reports that mortality risk is up to 37%.[1]

**Question 2: What is the appropriate first-line management of this condition?**

**A.** Systemic corticosteroids, heparin, plasma exchange and/or intravenous immunoglobulin (IVIG)

**B.** Fibrinolytics such as tranexamic acid or streptokinase

**C.** Hydroxychloroquine

**D.** Cyclophosphamide

**E.** Antibiotics (± fluid resuscitation)

**Answers:**

**A.** Systemic corticosteroids, heparin, plasma exchange and/or intravenous immunoglobulin (IVIG) − Correct. Therapeutic management of CAPS remains a challenge for clinicians.[1,2] Currently, the first line treatment is based on the administration of anticoagulants and high dose of systemic corticosteroids in all patients, with a strong consideration for the further addition of plasma exchange and/or intravenous immunoglobulin (IVIG).[3] In the present case, the patient was initially treated with steroids, high dose heparin and plasmapheresis. However, considering the poor response to this treatment with continued extension of the thrombotic microangiopathy, Rituximab, a monoclonal antibody specifically targeting the CD20 antigen, was introduced. As the clinical condition continued to worsen rapidly, a treatment with Eculizumab, a recombinant humanized monoclonal anti-C5 antibody, was initiated and led to disease stabilization. Rituximab and Eculizumab must be considered in refractory or relapsing cases of CAPS.

**B.** Fibrinolytics such as tranexamic acid or streptokinase − Incorrect. There is no standard recommendation for the use of fibrinolytics in CAPS.[3]

**C.** Hydroxychloroquine − Incorrect. Hydroxychloroquine is the first-line treatment for lupus erythematosus. This treatment can, therefore, be proposed in secondary antiphospholipid antibody syndrome associated with systemic lupus erythematosus (SLE).

**D.** Cyclophosphamide − Incorrect. The question is whether immunosuppressive therapy beyond corticosteroids need to be proposed. Addition of cyclophosphamide should be considered in patients with associated SLE.[3]

**E.** Antibiotics (± fluid resuscitation) − Incorrect. Antibiotics is not the first line therapy but can be part of the management if an infection is suspected as infections are the most important trigger of CAPS and an important cause of mortality.

**Question 3: What is the frequency of skin signs in these patients?**

**A.** Less than 10% of cases

**B.** 10% to 30% of cases

**C.** 30 % of cases

**D.** 50% of cases

**E.** 100% of cases

**Answers:**

**A.** Less than 10% of cases − Incorrect. According to the latest data in the literature, the estimated prevalence of cutaneous manifestations in patients with CAPS is of 50%.

**B.** 10% to 30% of cases − Incorrect. According to the latest data in the literature, the estimated prevalence of cutaneous manifestations in patients with CAPS is of 50%.

**C.** 30% of cases − Incorrect. According to the latest data in the literature, the estimated prevalence of cutaneous manifestations in patients with CAPS is of 50%.

**D.** 50% of cases − Correct. According to the latest data in the literature, the estimated prevalence of cutaneous manifestations in patients with CAPS is of 50%. CAPS may affect any organ system including the skin. Dermatologic manifestations (mainly livedo racemosa and superficial skin necrosis) are noted in half of the patients with CAPS and are the presenting manifestations in around 30% of cases.[4] Diagnosis of CAPS is based on the presence of all of following criteria: (1) thrombotic involvement of 3 or more organs/systems and/or tissues, (2) development of manifestations simultaneously or in less than 1 week, (3) confirmation by histopathology of small vessel occlusion in at least one organ or tissue, (4) laboratory confirmation of the presence of antiphospholipid antibodies.[1] In the present case, skin lesions led to the diagnosis. However, CAPS remains a diagnostic challenge for clinicians.

**E.** 100% of cases − Incorrect. For answers A, B, C, and E, according to the latest data in the literature, the estimated prevalence of cutaneous manifestations in patients with CAPS is of 50%.

**Abbreviations used:**

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| APS: | antiphospholipid antibody syndrome |
| aPTT: | activated partial thromboplastine time |
| C5: | Complement component 5 |
| CAPS: | catastrophic antiphospholipid syndrome |
| CD20: | Cluster of differenciation 20 |
| CT-scan: | computerized tomography scanner |
| DIC: | disseminated intravascular coagulation |
| IVIG: | intravenous immunoglobulin |
| PT: | Prothrombin time |
| RT-qPCR: | Real time quantitative polymerase chain reaction |
| SARS-CoV-2: | severe acute respiratory syndrome coronavirus 2 |
| SLE: | Systemic lupus erythematosus |

**Conflict of interest**

None disclosed.

**REFERENCES**

1. Cervera R, Rodríguez-Pintó I, Espinosa G. The diagnosis and clinical management of the catastrophic antiphospholipid syndrome: a comprehensive review. *J Autoimmun*. 2018;92:1-11. https://doi.org/10.1016/j.jaut.2018.05.007
2. Fujieda Y, Amengual O. New insights into the pathogenic mechanisms and treatment of arterial thrombosis in antiphospholipid syndrome. *Eur J Rheumatol*. 2020;8(2):93-99. https://doi.org/10.5152/eurjrheum.2020.20058
3. Kazzaz NM, McCune WJ, Knight JS. Treatment of catastrophic antiphospholipid syndrome. *Curr Opin Rheumatol*. 2016;28(3):218-227. https://doi.org/10.1097/BOR.0000000000000269
4. Cervera R, Tektonidou MG, Espinosa G, et al. Task force on catastrophic antiphospholipid syndrome (APS) and non-criteria APS manifestations (II): thrombocytopenia and skin manifestations. *Lupus*. 2011;20(2):174-181. https://doi.org/10.1177/0961203310395052