In the Name of Allah

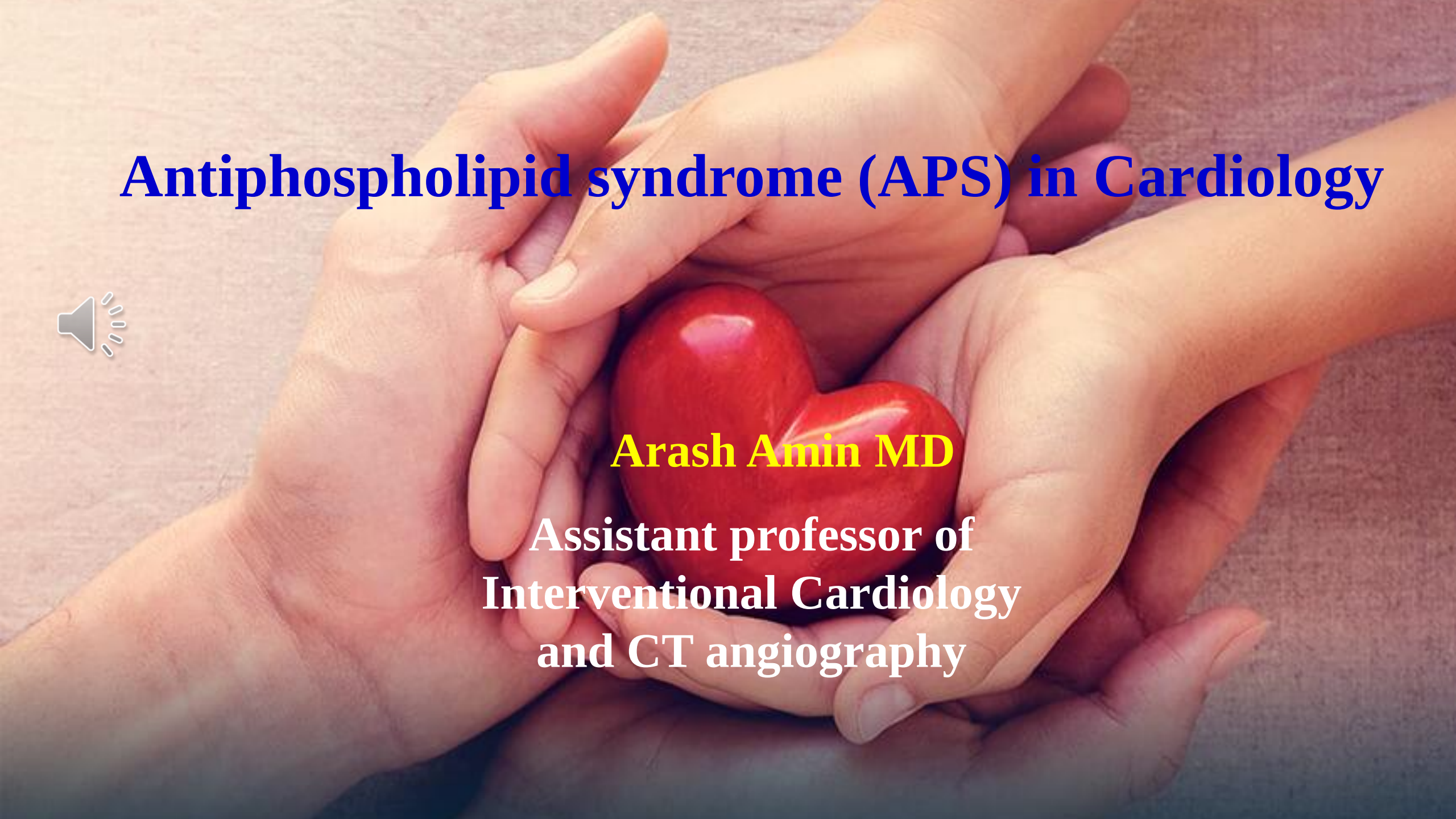
Symposium of Challenge in Thrombotic Disease

Lorestan University of Medical Sciences

November 18, 2021

Khorram Abad, Lorestan, Iran

Antiphospholipid syndrome (APS) in Cardiology



Arash Amin MD

Assistant professor of Interventional Cardiology and CT angiography

Antiphospholipid syndrome (APS)

- An autoimmune disease
- Characterized by:
- 1. Venous thromboembolism
- 2. Arterial thrombosis
- 3. Obstetric morbidities

Antiphospholipid Syndrome
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Antiphospholipid antibodies:

- Persistently positive
- measured on 2 different occasions 12 weeks apart

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Increased risk of disease:

- 1. Accelerated atherosclerosis
- 2. Myocardial infarction
- 3. Stroke
- 4. Valvular heart disease

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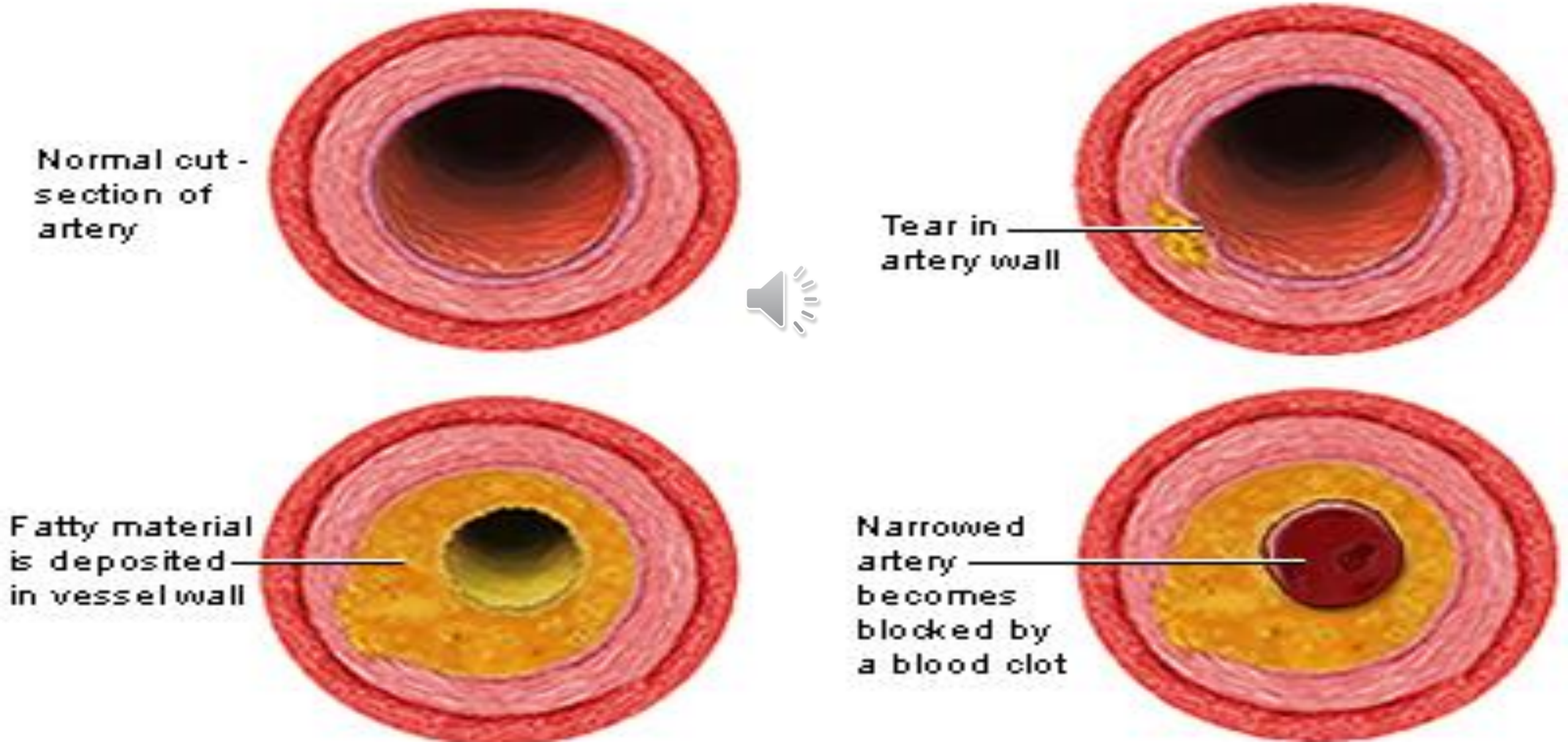
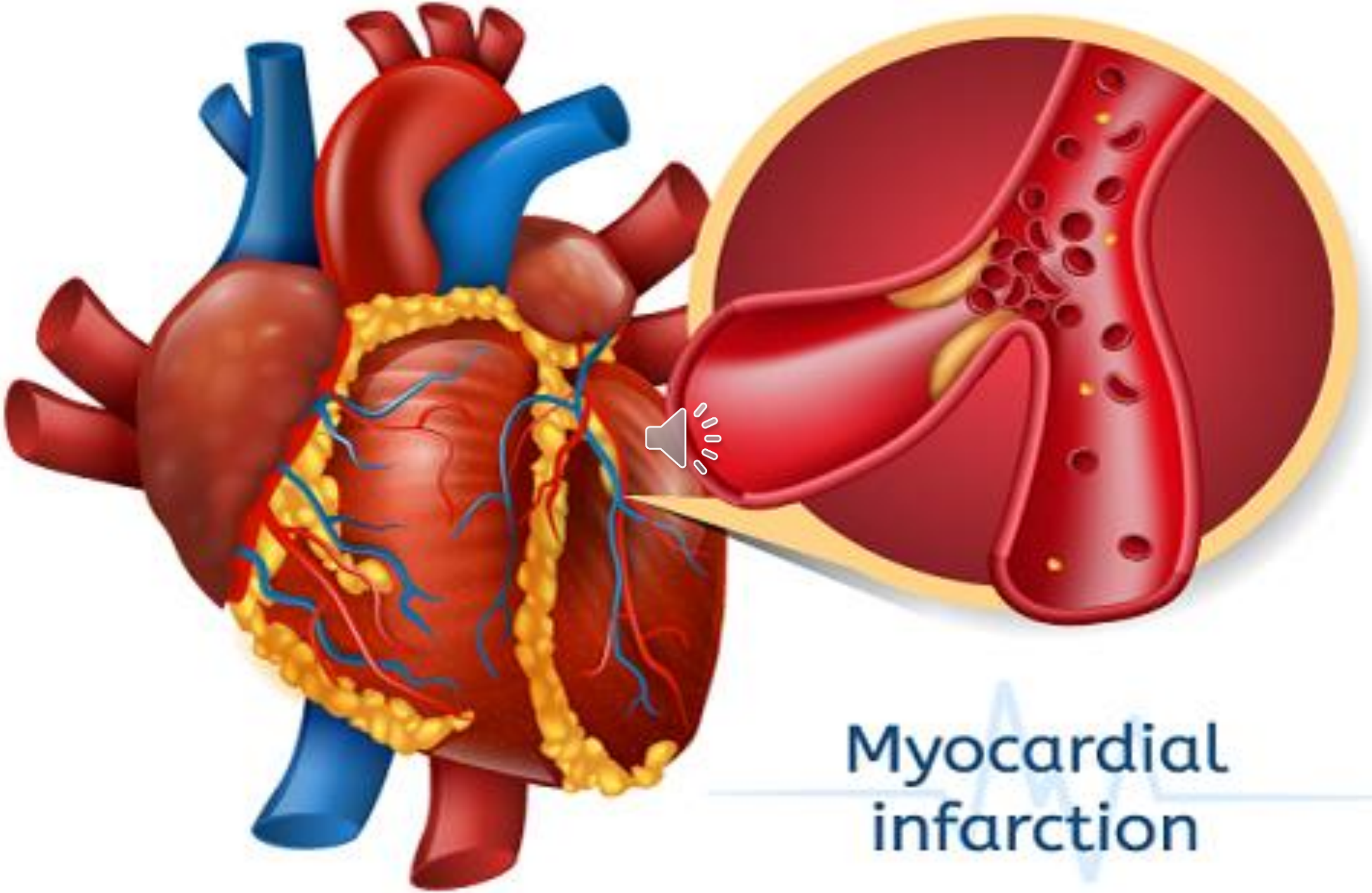
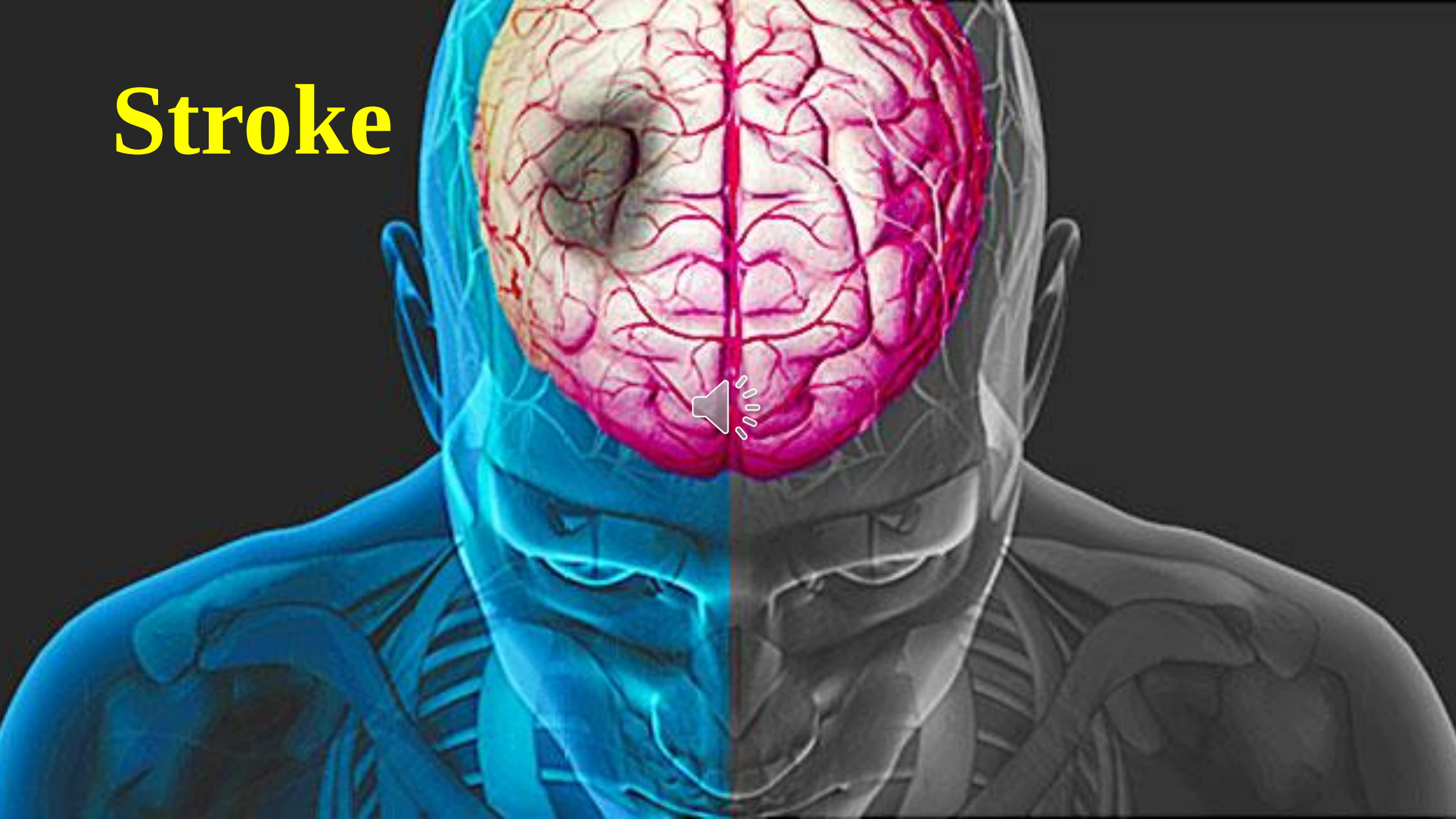
Accelerated atherosclerosis





Myocardial infarction

Stroke



Valvular heart disease

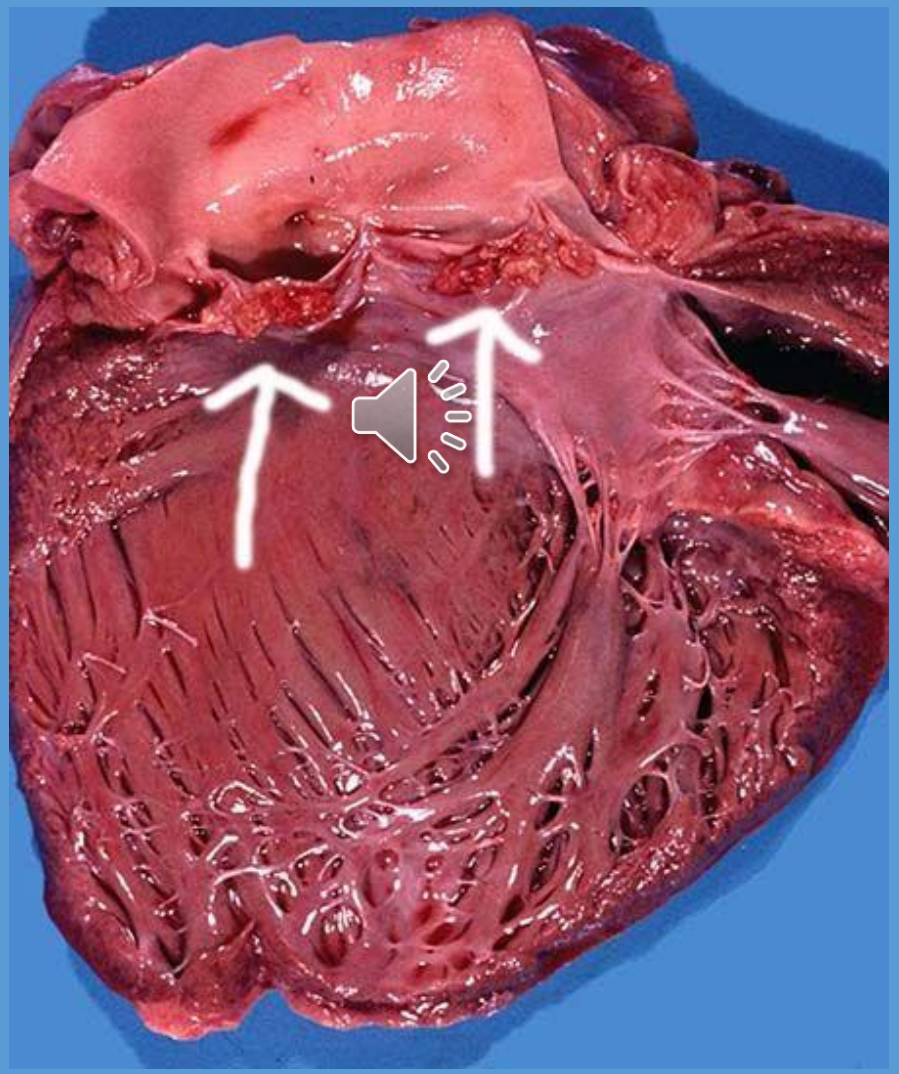


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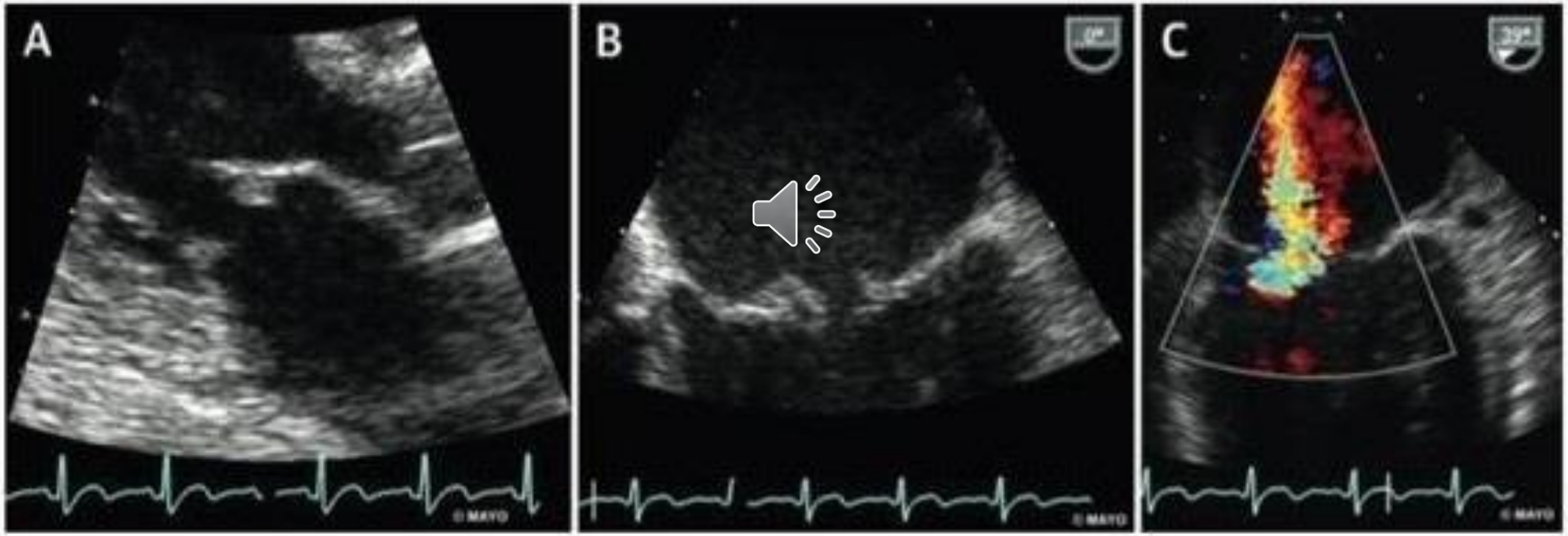
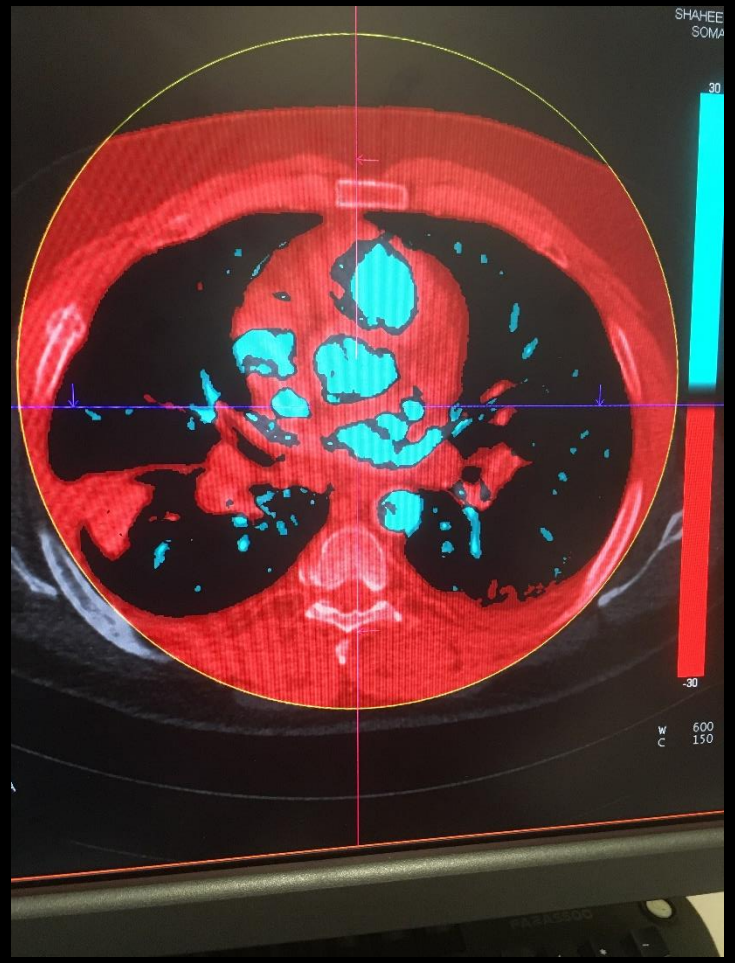
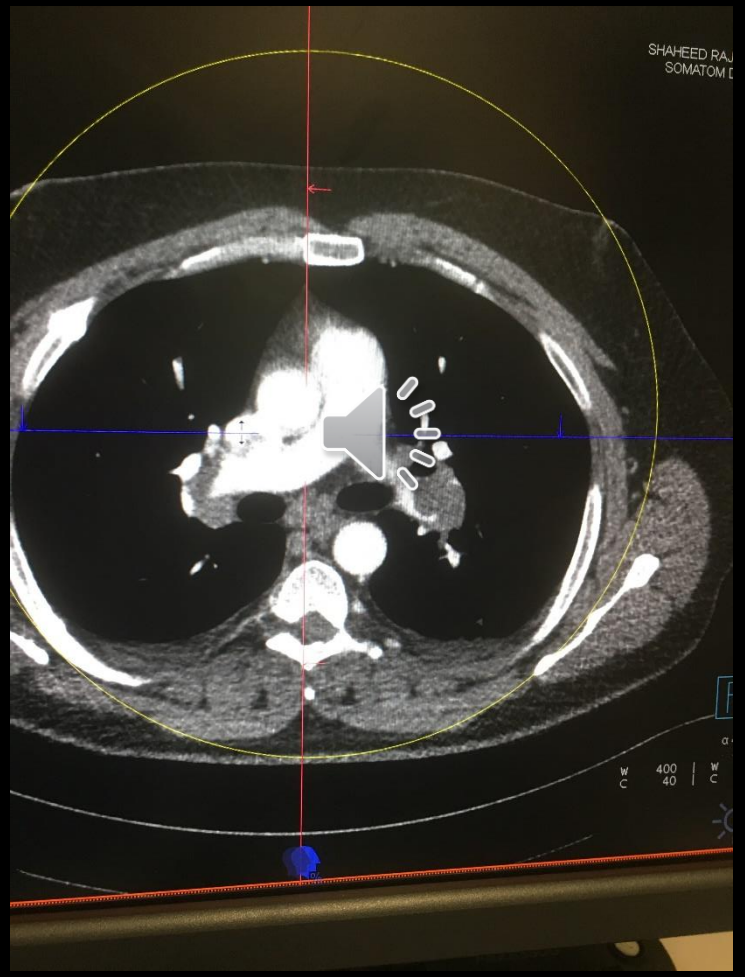
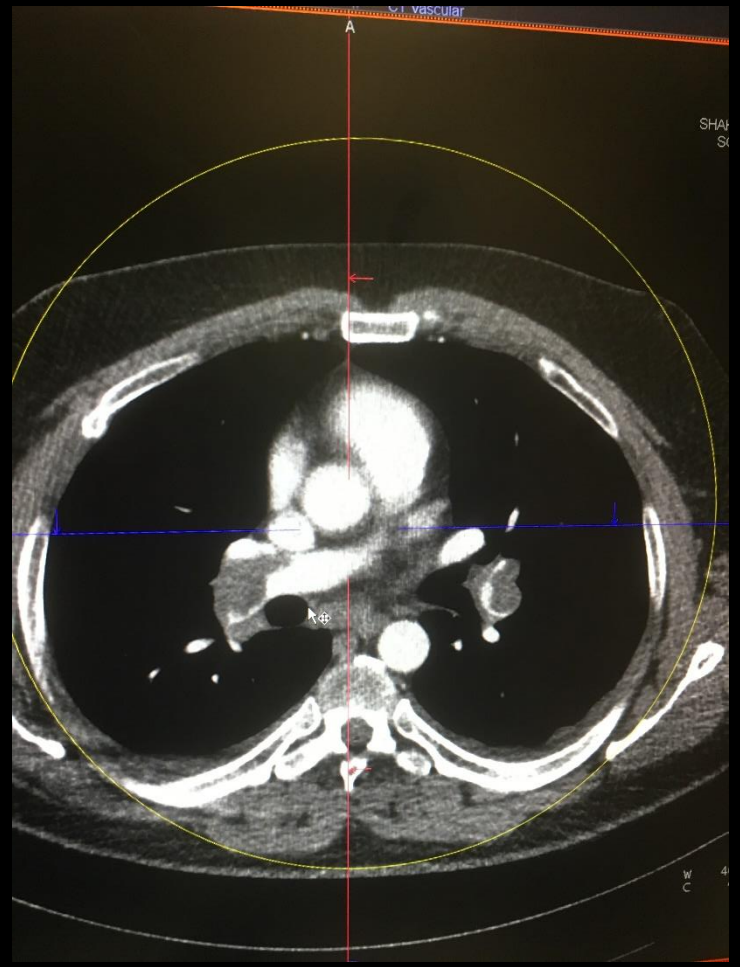
FIGURE 2 **Libman-Sacks Endocarditis**

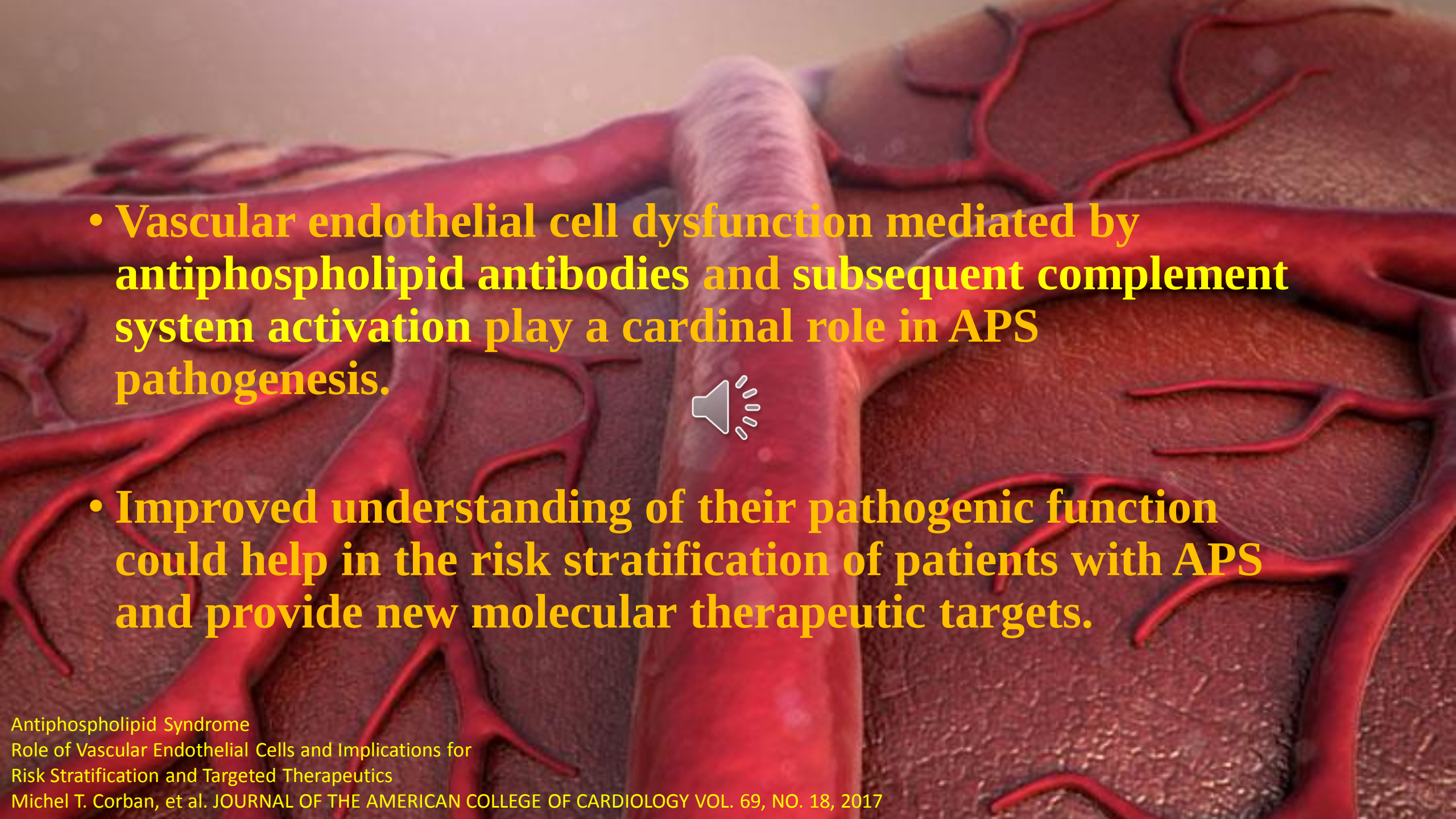


Pulmonary thromboembolism









- **Vascular endothelial cell dysfunction mediated by antiphospholipid antibodies and subsequent complement system activation play a cardinal role in APS pathogenesis.**

- **Improved understanding of their pathogenic function could help in the risk stratification of patients with APS and provide new molecular therapeutic targets.**

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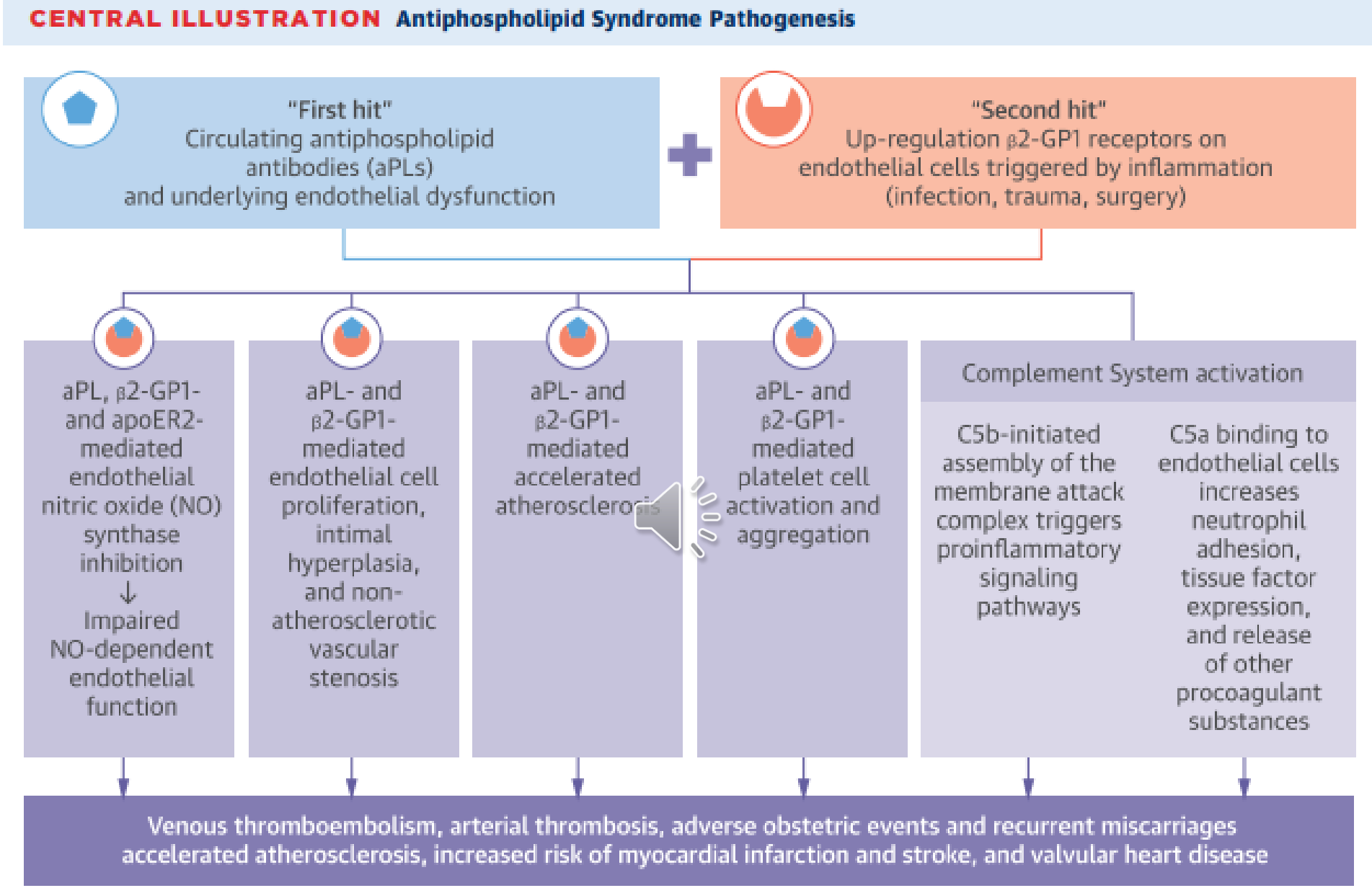

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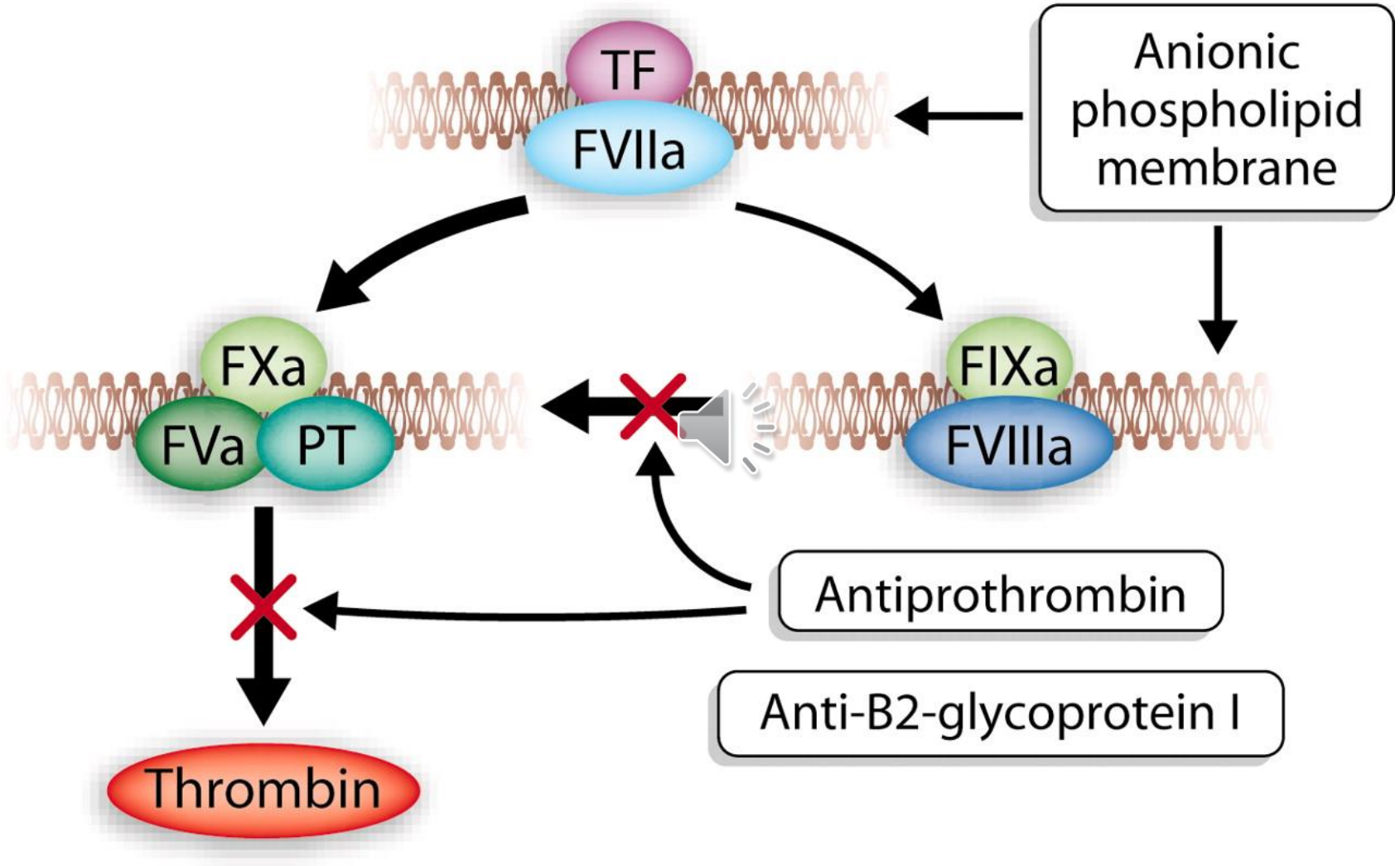
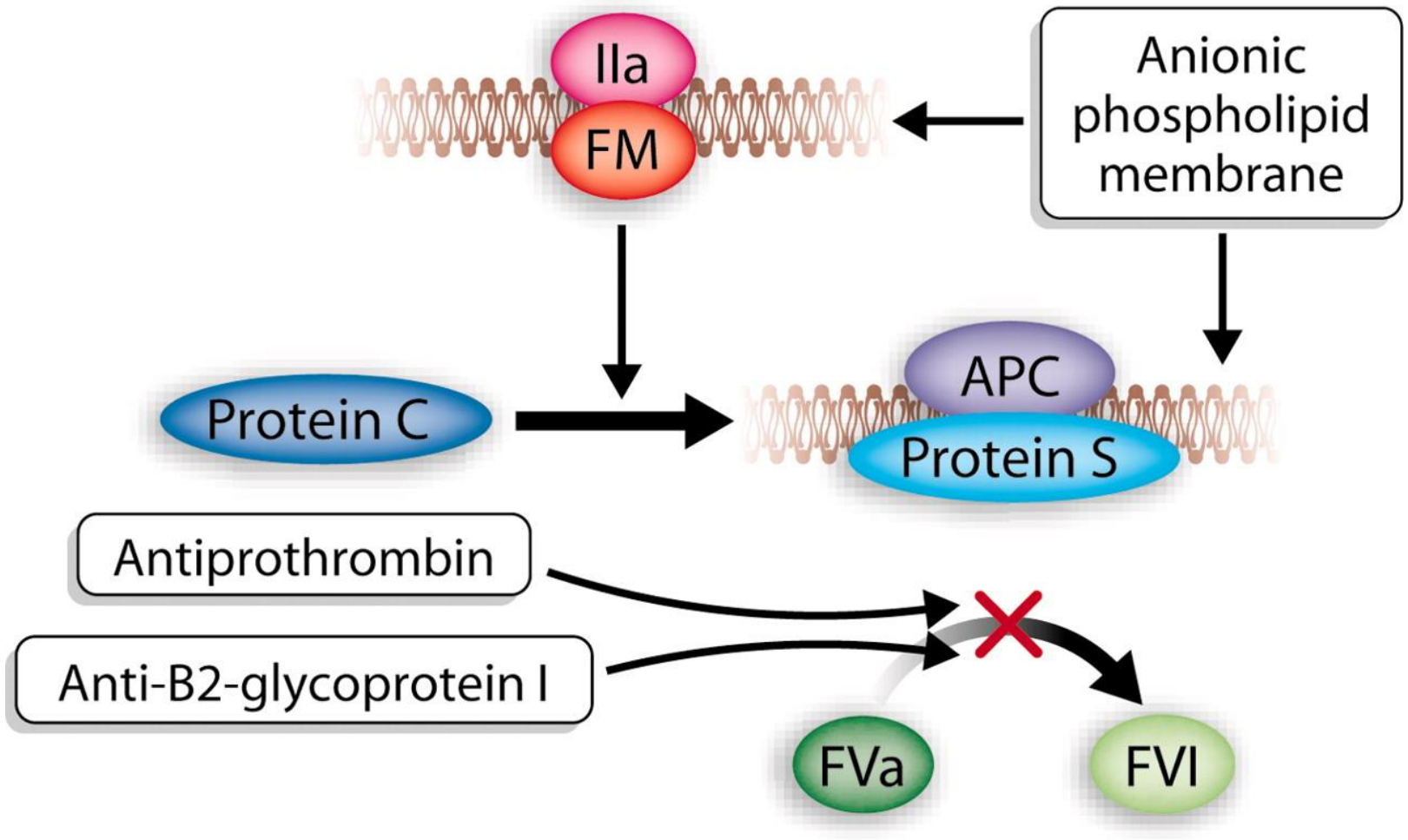
Inhibition of phospholipid-dependent coagulation reactions. The sites of action of anti–B2GP-I and antiprothrombin antibodies are indicated by Xs.



Antiphospholipid Syndrome in Systemic Lupus Erythematosus
Gary S. Hill and Dominique Nochy
JASN September 2007, 18 (9) 2461-2464; DOI: https://doi.org/10.1681/ASN.2007030257

Inhibition of inactivation of factor Va by the protein C pathway. The stable trimolecular complexes formed by antiphospholipid antibodies (APL) at the anionic phospholipid surface hamper the inactivation of factor Va.



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- **Morbidity and mortality in APS is strongly associated with aPL-mediated vascular endothelial cell dysfunction and complement system activation.**

- **Although thrombophilia is the hallmark of APS, accurate identification of patients at increased risk for thrombosis remains a challenge.**

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- **To date, therapeutic efforts have focused mostly on preventing recurrent thrombotic events in patients with APS, with only limited research directed toward new therapies for primary prevention.**

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Thrombophylaxis

Primary Thrombophylaxis:

- General measures for all antiphospholipid positive patients:
- Assessment of cardiovascular risk factors

- In high risk situations (Puerperium, surgery, prolonged immobilization:
- LMWH for thrombophylaxis

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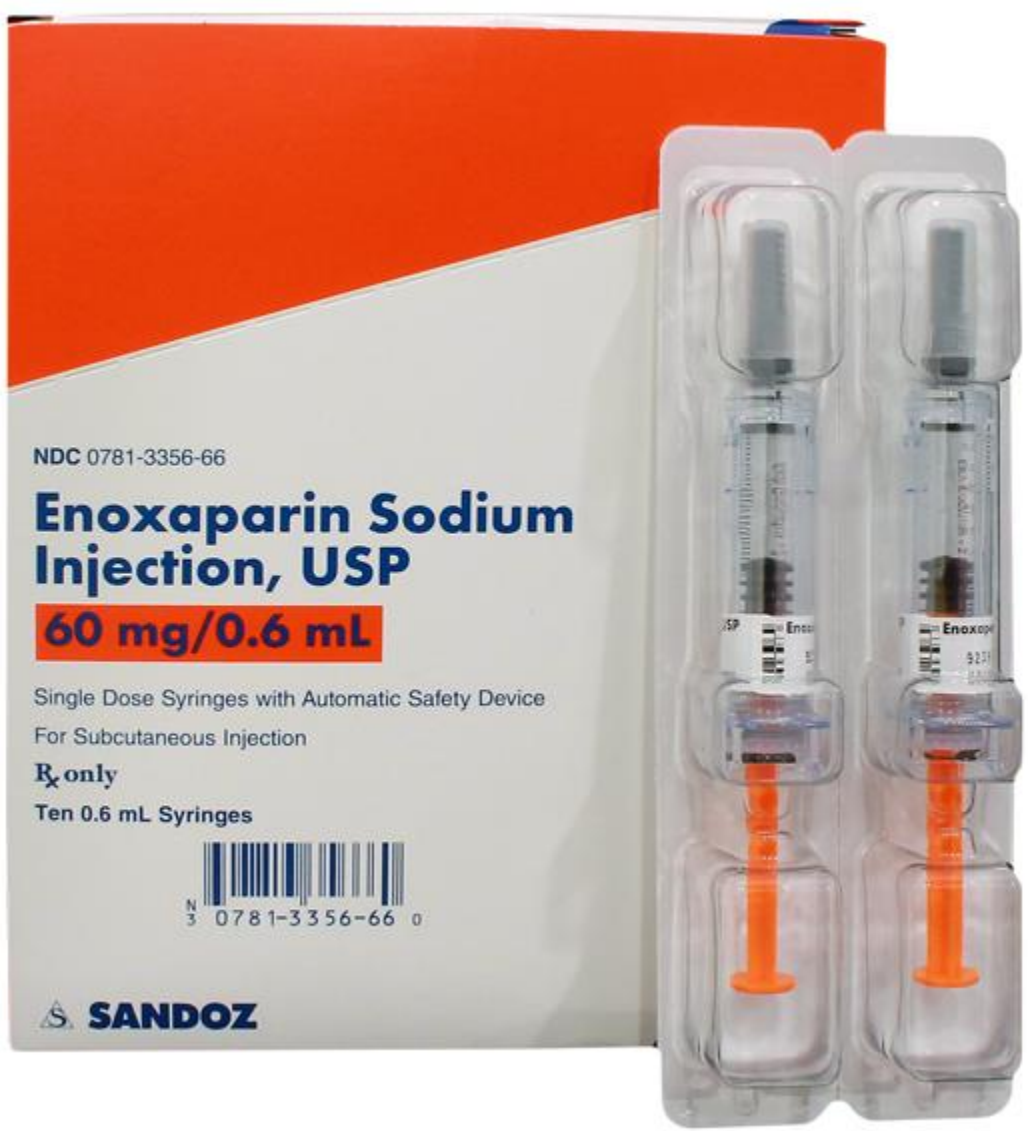
NDC 0781-3356-66
Enoxaparin Sodium Injection, USP
60 mg/0.6 mL
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For Subcutaneous Injection
℞ only
Ten 0.6 mL Syringes
N 3 0781-3356-66 0
SANDOZ

Primary Thrombophylaxis:

- Antiphospholipid-positive non SLE patients (Obstetric APS and asymptomatic carriers):
- Low dose Aspirin (75-100 mg/day) in those with a high risk APL profile, especially in the presence of other thrombotic risk factors

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DG health
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Low Dose
Aspirin 81 mg
Pain Reliever (NSAID)
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• Aspirin regimen
100 Tablets
Actual Tablet Size


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۱۰۰ قرص انتریک کوتد
هر قرص انتریک کوتد حاوی:
۸۰ میلی‌گرم استیل سالیسیلیک اسید
پارس دارو
تهران - ایران


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هر قرص حاوی:
اسید استیل سالیسیلیک ۳۲۵ میلی گرم


Compare to the active ingredient in Bayer® Low Dose Aspirin
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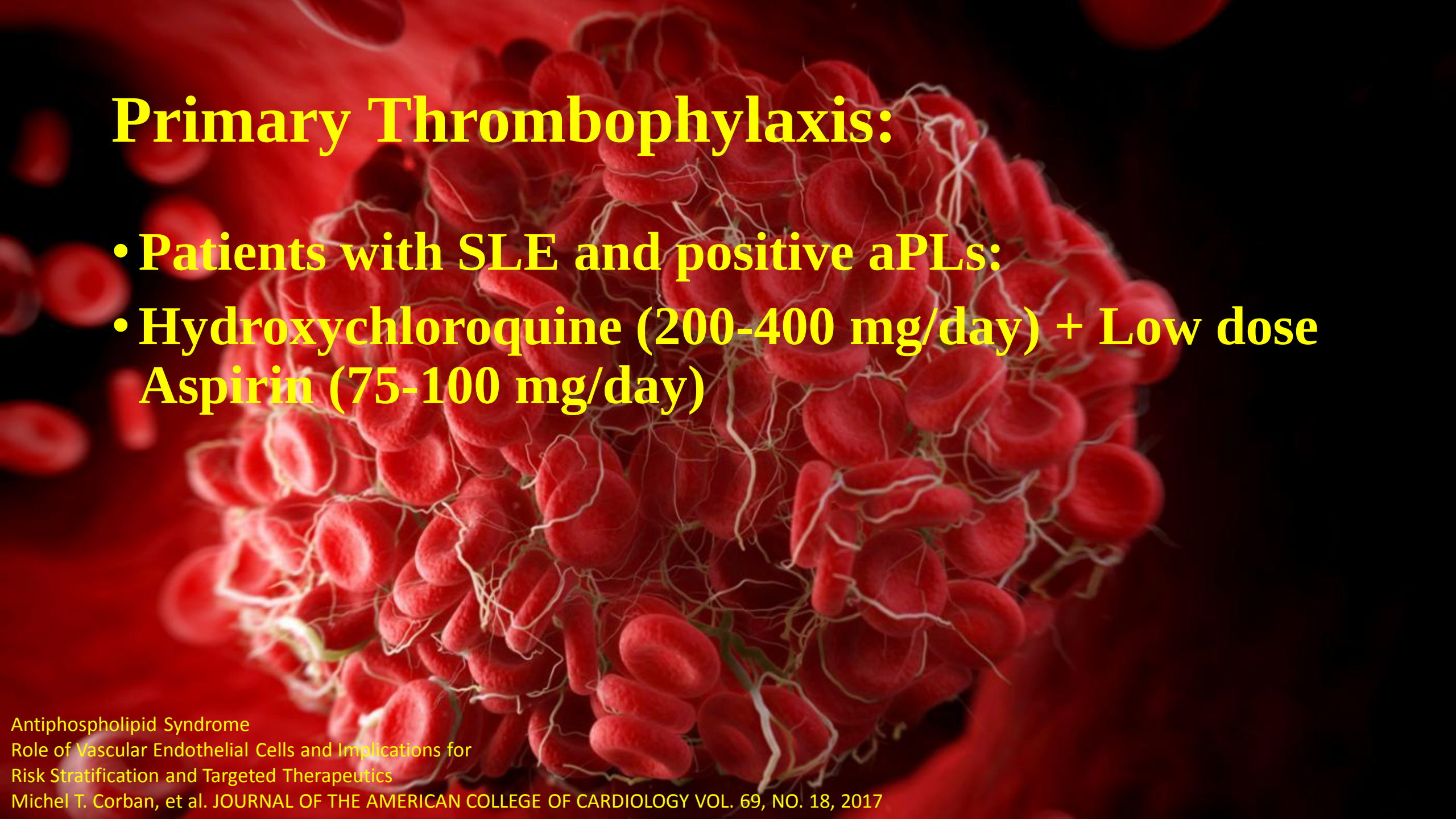
ASPIRIN REGIMEN‡
LOW DOSE,
SAFETY COATED
LOW DOSE SAFETY COATED
ASPIRIN 81mg
PAIN RELIEVER (NSAID)
500 ENTERIC COATED TABLETS
ACTUAL SIZE

Primary Thrombophylaxis:

- **Patients with SLE and positive aPLs:**
- **Hydroxychloroquine (200-400 mg/day) + Low dose Aspirin (75-100 mg/day)**



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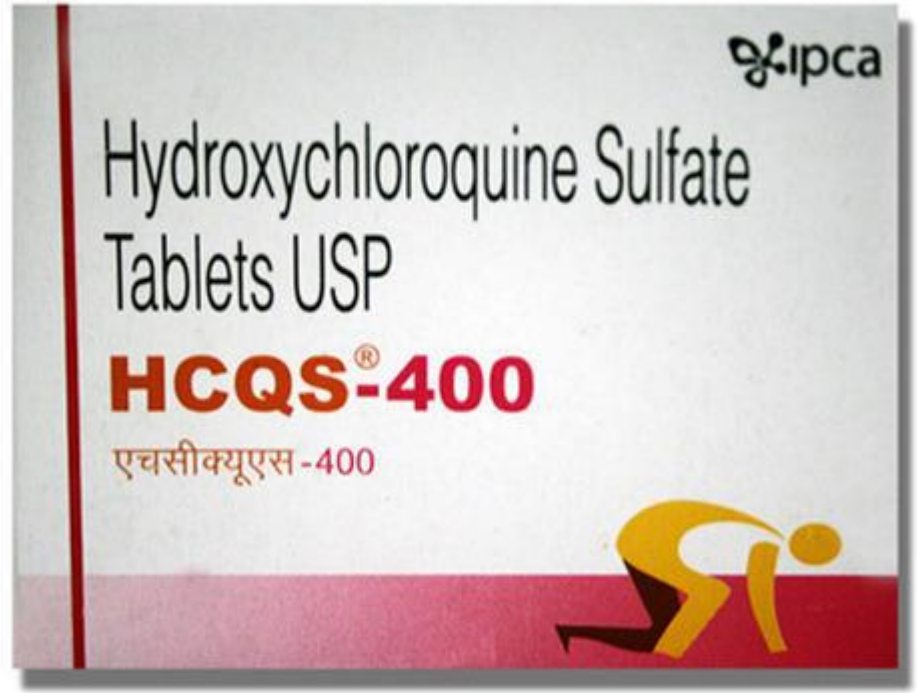
۱۰۰ قرص روکشدار
هیدروکسی کلروکین سولفات ۲۰۰
هر قرص حاوی
هیدروکسی کلروکین سولفات ۲۰۰ میلی گرم
ساخت لابراتوار داروسازی روزدارو
تهران - ایران


ipca
Hydroxychloroquine Sulfate
Tablets USP
HCQS®-400
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NEW NDC
NEW LOOK
200
mg
Hydroxychloroquine
Sulfate Tablets, USP
500
Tablets
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Secondary prevention:

- **Definitive APS and a first venous event:**
- **Indefinite oral anticoagulant therapy to a target INR of 2-3**

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Secondary prevention:

- **Definite APS and arterial thrombosis:**
- **Indefinite oral anticoagulant therapy to a target INR>3 or combined antiagrecant-anticoagulant therapy (INR:2-3)**

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Secondary prevention:

- **Patient with venous or arterial thrombosis who do not fulfill criteria for APS: Treatment as usual recommendation for arterial or venous thrombosis**

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TABLE 3 Alternative and Adjunctive Therapeutic Options for Specific Clinical Scenarios in Antiphospholipid Syndrome

Known warfarin allergy, warfarin intolerance, or poor anticoagulant control on warfarin despite therapeutic target (as per Table 2)	• Treatment with, or addition of, NOAC: direct thrombin inhibitor dabigatran or direct anti–factor Xa inhibitors rivaroxaban, apixaban, or edoxaban
Heparin-induced thrombocytopenia	• Treatment with fondaparinux or argatroban
Refractory APS despite adequate anticoagulation (as per Table 2)	• Consider starting statin therapy • Consider adding rituximab therapy • Consider adding glucocorticosteroids and IVIG + plasma exchange
CAPS	• Heparin anticoagulation + glucocorticosteroids + IVIG and/or plasma exchange reduces mortality • Eculizumab reduces mortality
Renal transplantation patients with APS	• Sirolimus decreases recurrent vascular lesions and vascular proliferation • Eculizumab for treatment and prevention of thrombotic microangiopathy in patients with history of CAPS
Obstetric APS	• Heparin (unfractionated or LMWH) + low dose aspirin (75–100 mg/day) • Patients on warfarin should be switched to heparin (unfractionated or LMWH) immediately upon pregnancy confirmation to avoid teratogenicity • Extended thromboprophylaxis (up to 6 weeks after delivery) for high-risk patients • Indefinite anticoagulation for APS patients with prior thrombotic events

CAPS = catastrophic antiphospholipid syndrome; IVIG = intravenous immunoglobulin; NOAC = new oral anticoagulant; other abbreviations as in Table 1.

- **Although anticoagulation is the mainstay therapy for secondary thromboprophylaxis in patients with APS, asignificant number of those patients develop recurrent thrombosis despite conventional therapeutic anticoagulation targets.**

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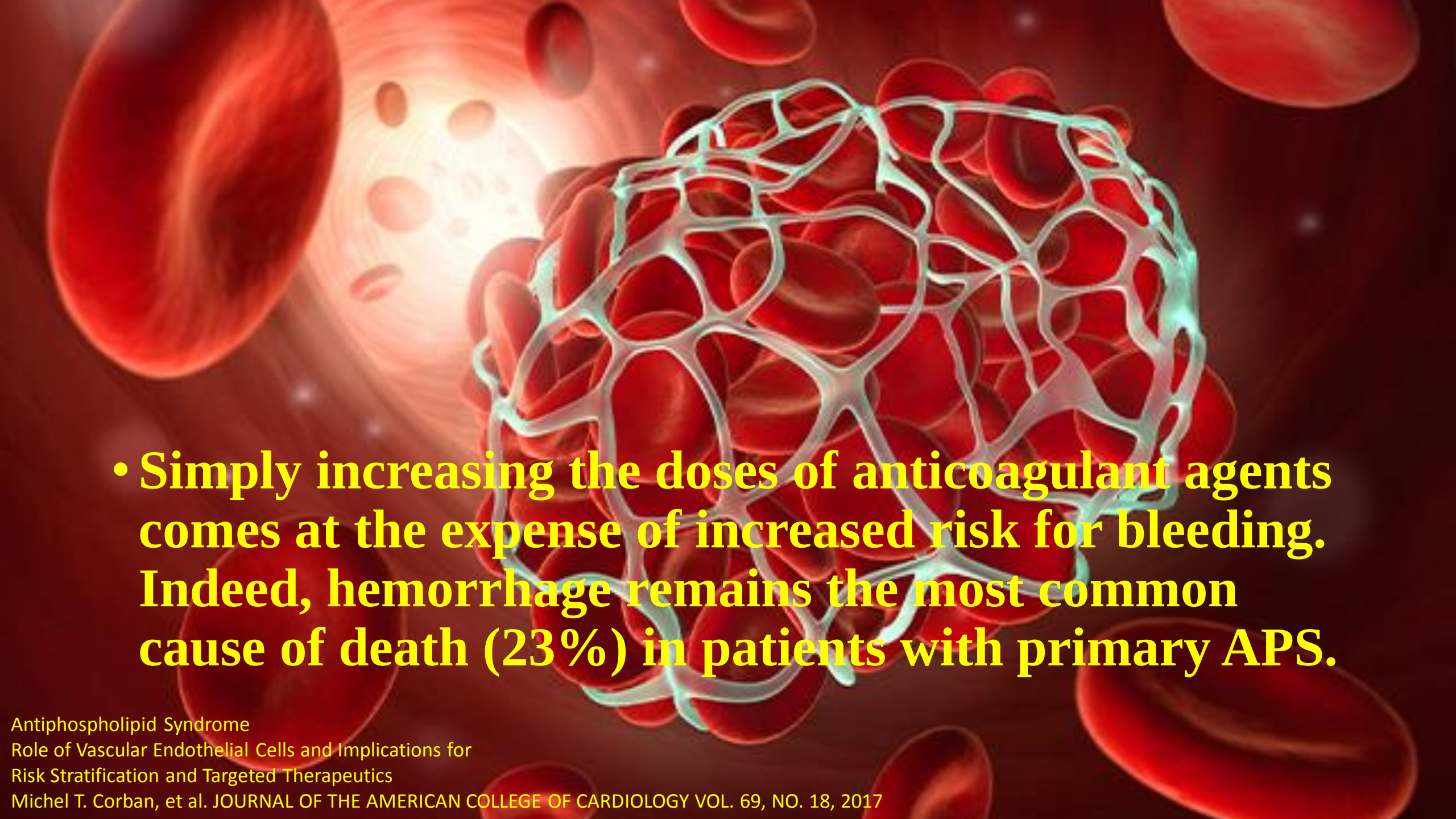

- **Simply increasing the doses of anticoagulant agents comes at the expense of increased risk for bleeding. Indeed, hemorrhage remains the most common cause of death (23%) in patients with primary APS.**

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Thanks for your attention!