

Aerospace Medicine Clinic

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You're the flight surgeon at a small overseas U.S. Air Force (USAF) aerospace medicine clinic. A 26-yr-old enlisted male intel soldier presents to your clinic for an initial flying class I (FC-I) exam to become a pilot in the USAF. He has no significant past medical history nor past surgical history and takes no medications except for a daily multivitamin. His hearing is H-1 and he is plano sphere in both eyes (OU) with uncorrected near and distant visual acuity of 20/20 OU. He has normal visual fields and passes depth perception through line F. Intraocular pressures are 14 mmHg right eye and 15 mmHg left eye. On fundoscopic examination, you note some distal arterial beading and a few small retinal blot hemorrhages in the temporal periphery of his right eye. Fundoscopic examination of his left eye is normal. The remainder of his physical exam is unremarkable.

1. What is the most appropriate next step?
 - A. Medically qualify the applicant for all FC duties.
 - B. Submit for permanent medical disqualification of the applicant for all FC duties.
 - C. Refer the applicant to Ophthalmology for further evaluation.
 - D. Submit an aeromedical waiver for the applicant's right eye findings.

ANSWER/DISCUSSION

1. C. Despite his asymptomatic state with no current visual deficiencies, the patient should be referred to Ophthalmology for further evaluation to optimally characterize and diagnose his right eye retinal findings. This is important for proper analysis of the patient's aeromedical risk and appropriate aeromedical disposition, as well as for management of the patient's potential condition going forward. The USAF Medical Standards Directory mandates that any FC-I/IA/II/III or Special Warfare Airman (SWA)-qualified patient found to have hemorrhages, exudates, or other retinal vascular disturbances is medically disqualified from those duties and must have an aeromedical waiver submitted for continued qualification.¹

As such, this patient is medically disqualified from FC-I/IA/II/III and SWA duties and will need an aeromedical waiver submitted and approved to become a USAF pilot.

Answer A is incorrect because, per the USAF Medical Standards Directory, the patient is medically disqualified from all FC-I/IA/II/III or SWA duties by his right eye findings.¹ Answer B is incorrect because the patient should be fully worked up for his condition, including an appropriate specialist evaluation, and his aeromedical risk should be characterized and dispositioned via the aeromedical waiver process. While his disposition may ultimately be permanent disqualification, this step should not be requested from the waiver authority without the appropriate workup and risk analysis first. Answer D is also incorrect: while an aeromedical waiver should be submitted in this case, an Ophthalmology evaluation will likely be required by the waiver authority and should be pursued prior to waiver submission to allow for optimal disposition of the patient's case.²

You refer the patient to Ophthalmology for further evaluation. A week later, the patient returns to your clinic for follow-up after his Ophthalmology appointment with the ophthalmology report. The ophthalmologist's report indicates that on ophthalmoscopy the patient has a moderate-sized area of distal arterial beading in the temporal periphery of the right eye, with retinal blot hemorrhages in the inferotemporal periphery without exudates, retinal detachment, or vitreoretinal traction. The patient's left eye was found to be normal. He was diagnosed with Coats' disease and recommended to have an annual Ophthalmology evaluation including slit lamp and dilated peripheral fundus exam as well as optical coherence tomography of the maculae, in addition to immediate ophthalmological evaluation for any visual changes. You know that Coats' disease is a rare form of typically unilateral exudative retinopathy caused by congenital retinal telangiectasia and is usually found in a bimodal distribution with a peak in young and middle-aged males.^{3,4} The telangiectatic blood vessels tend to be dilated, twisted, and leaky, causing exudation and lipid deposition into the surrounding retina.^{4,5}

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Adult-onset disease typically has a more benign course and more favorable treatment outcome than that with childhood onset.^{5,6} Up to 8% of individuals are asymptomatic and are only detected coincidentally on routine examination.³

With this information in hand, you tell the patient that you will need to submit an aeromedical waiver for his condition. He tells you, “I don’t get it – what’s the big deal here? My eyesight is normal and the eye doctor told me that I just need to see him once a year. Why do I need a waiver? What’s the danger in me flying?”

2. Which of the following is a primary aeromedical risk associated with Coats’ disease?
 - A. Retinal detachment.
 - B. Closed angle glaucoma.
 - C. Retinal vascular occlusion.
 - D. Ocular infection.

ANSWER/DISCUSSION

2. **A.** Sudden and incapacitating loss of vision from retinal detachment is the most significant aeromedical event for which Coats’ disease increases risk.^{7,8} This would occur due to exudate infiltrating between the retina and the choroid, peeling it away and causing detachment. Such an event would cause sudden unilateral visual loss and degraded stereopsis, which could result in a catastrophic loss of aircraft control and situational awareness if it occurred in the pilot of a single-seat aircraft, particularly during critical phases of flight or if it resulted in complete incapacitation. In a multiplace aircraft, the sudden unilateral visual loss would be less likely to cause loss of life or aircraft since another pilot could take over the controls, although the risk to aircraft and aircrew remains should a retinal detachment occur during critical phases of flight. Other significant aeromedical risks of Coats’ disease include progressive and permanent loss of central visual acuity and/or visual fields, decreased stereopsis, and degraded contrast sensitivity.^{8–10} These typically occur well before a sudden retinal detachment and can cause both subtle and overt performance degradation. Retinal ischemia can also occur in areas of telangiectasia; intra- and subretinal hemorrhage are also possible.⁴ Only 12% of patients maintain better than 20/50 vision in the affected eye long-term³; thus, the prognosis for maintaining acceptable vision standards in military aviation is poor. Coats’ disease is not known to be associated with elevated risk of closed angle glaucoma, retinal arterial or venous occlusion, or ocular infections, so answers B, C, and D are incorrect.

You discuss the issues of aeromedical risk with the patient and his generally poor long-term prognosis to maintain good visual acuity, but he is adamant about requesting a waiver as it has always been his dream to be a pilot. You complete his waiver package and send it to the waiver authority, where a USAF Aeromedical Consultation Service evaluation is requested. After the evaluation is completed, the Aeromedical Consultation Service confirms the diagnosis and recommends

against waiver approval due to the risks discussed above. The waiver is denied by the waiver authority and the patient remains medically disqualified for FC-I/IA/II/III and SWA duties. At the patient’s follow-up appointment to discuss his waiver with you, you relay to him the bad news. While he is disheartened by his disqualification, he asks you if there is any possibility that he could become a pilot in a sister service.

3. Which of the following is true of his potential for qualification under sister service aeromedical standards?
 - A. He is qualified under both Army and Navy standards.
 - B. He is disqualified under Army standards but qualified under Navy standards.
 - C. He is disqualified under Navy standards but qualified under Army standards.
 - D. He is disqualified under both Army and Navy standards.

ANSWER/DISCUSSION

3. **D.** Unfortunately for this applicant, he is also disqualified under both Army and Navy aeromedical standards as well as the Marine Corps, which uses the Navy’s aeromedical standards. Army regulations do not specifically address Coats’ disease, but any condition that may cause retinal detachment is disqualifying; however, an exception to policy/waiver is recommended on a case-by-case basis.^{11,12} Coats’ disease is considered disqualifying for aviation duty under Navy medical standards per the Manual of the Medical Department, which states no pathology must be present on fundoscopy for medical qualification for Class I aviation duty.¹³ Answers A, B, and C are incorrect, as Coats’ disease is disqualifying under both Army and Navy standards as noted above.

You tell the applicant that he unfortunately would not be medically qualified under sister service aeromedical standards and would require a waiver by them as well, which is unlikely given his level of aeromedical risk and prognosis. Dismayed but not yet defeated, he says, “Well if I can’t be a military pilot, I can at least be a civilian pilot someday, right? Can I still get an FAA [Federal Aviation Administration] medical certificate with this Coats’ disease?”

4. Which class of FAA medical certificate could an aviation medical examiner (AME) issue the patient with his known retinopathy?
 - A. First, Second, or Third Class.
 - B. Second or Third Class.
 - C. Third Class only.
 - D. None; the applicant’s case must be deferred to the FAA for consideration for a Special Issuance.

ANSWER/DISCUSSION

4. **D.** Per the 2024 FAA Guide for Aviation Medical Examiners, retinopathy of any kind requires the AME to submit all pertinent

medical information and a current status report to the FAA for a decision on a Special Issuance.¹⁴

Answers A, B, and C are incorrect. Per FAA regulations, an AME cannot issue a medical certificate of any class to an applicant with any kind of retinopathy, and there are no Conditions an AME Can Issue for retinopathy at this time.¹⁴

You tell the applicant that he would have to get a Special Issuance from the FAA to become a civilian pilot and that he would need to be evaluated by an FAA AME to start the process to apply for a Special Issuance for his Coats' disease. You wish the airman best of luck as he sets out to find an international FAA AME to start the process to optimally posture himself for starting civilian flight training after he returns to the United States and separates from the USAF so he may continue to follow his dream of becoming a pilot.

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