Psoriasis: Aeromedical implications

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ABSTRACT

Dermatological diseases like psoriasis, with their chronic nature and sometimes resistance to treatment, present challenges to the aeromedical practitioner who has to decide on the fitness of aircrew to fly. The Manual of Medical Examination and Medical Board, published by Indian Air Force Publications (IAP 4303 II edition) does not lay down any clear-cut guidelines on the disposal of psoriasis in aircrew. This case report discusses two cases of psoriasis that were detected incidentally during evaluation for other non-dermatological disabilities at this Institute. These cases are being reported with the aim of discussing the aeromedical implications of psoriasis in aviators.

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KEY WORDS: Psoriasis, Aircrew, and Flying

Dermatological diseases such as psoriasis can present decision-making difficulties to the aeromedical practitioner who has to determine whether an aircrew can fly with a medical condition. While certain skin diseases can be treated effectively or have a simple clinical course others like psoriasis are usually unpredictable in their progress and response to treatment. Two pilots reporting to the Institute of Aerospace Medicine (IAM) in the year 2003 for review/recategorization for non-dermatological disabilities were detected to have moderate to severe psoriasis, IAP 4303 does not lay down any clear-cut guidelines on the disposal of psoriasis in aircrew [1]. These cases are, therefore, being reported with the aim of discussing the aeromedical implications of psoriasis in aviators.

Case Reports

Case 1. A 35 year old fighter pilot sustained fracture both medial malleoli following ejection, from a MiG 21 aircraft in July 02. He was managed conservatively. Post ejection MRI revealed disc protrusion CV5-SV1. He was placed in medical category A4G4 (T-24) for all the disabilities and had reported for review.

Clinical examination revealed extensive psoriatic lesions in varying stages of progress, present all over the body, but sparing the face. Auspitz sign was positive. Nails of both hands showed psoriatic changes however there was no joint involvement. Old healed lesions were present over the scalp. History revealed that the duration of the skin illness was about three years, with relapses and remissions. He had been using topical lotions intermittently on his own. Dermatological consultation was sought and he was advised Salicylic acid, Betamethasone, and Dithranol ointments locally with recommendation to be placed in low (non-flying) medical category.

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A4G4 (T-12). He was subsequently awarded a composite medical category A4G4 (T-12) for both disabilities.

Case 2. This 34 year old helicopter pilot was a case of autoimmune thyroiditis with hypothyroidism on tab Eltroxin 100 microgram OD. He was in medical category A3G3 (T-24) and had reported for his review/recategorisation in Mar 03 after 3 hours of flying.

Clinical examination revealed psoriatic lesions over his body, sparing the face, but involving the nape of the neck. Auspitz sign was negative. Nails of fingers and toes showed psoriatic changes with left little finger showing nail drop sign. At the time of evaluation he did not have joint involvement, though he gave history of having some joint pains during the intervening period. He also admitted of taking some homeopathic medicine for his illness, the details of which were not available. His illness dated back to almost 6 years with no documented treatment from the station medical authorities. He was reviewed by the dermatologist, who advised local application of Salicylic acid, Betamethasone and Dithranol ointments and recommended a restricted temporary flying category A3G3 (T-24)

Discussion

Psoriasis is a non-infectious, chronic proliferative epidermal disease of unknown etiology [2] and is characterized by well-defined erythematous plaques with large, adherent silvery scales. The main abnormality in psoriasis is increased epidermal proliferation due to excessive division of cells in the basal layers and a shorter cell cycle time [2] They may occur singly or lead to extensive and even generalized involvement as seen in our aircrew who had generalized involvement of the body, sparing the face. The nails of both the hands were involved in both the aviators.

The areas of the body affected by psoriasis can be a cause for concern in aviators as in case of the fighter pilot who had healed lesions of the scalp. Involvement of the face and or the scalp can interfere with the use of mask and helmet respectively. In cases where palms and soles are involved it may interfere with use of flight controls. Thus, each aircrew will merit individualized evaluation for fitness for flying duties. Arthritis and inflammatory bowel disease are two major complications of this disease; one of the aircrew gave history of joint involvement early in his illness. Joint involvement has generally been considered non-compatible with flying [3].

In a majority of patients, exacerbations can be attributed to local trauma, infection, drugs, cold weather, emotional stress and anxiety. Some cases have been documented to have been actually exacerbated by the stress and anxiety involved in military deployment [4]. Exacerbation of the disease through repeated occupational trauma to the skin or by physical and emotional trauma needs to be considered when reviewing aircrew for flying duties.

There are other aeromedical concerns with psoriasis. In-flight, the aircrew may be distracted by pruritus. The disease also carries the potential risk of lowered self-esteem, cosmetic disfigurement and occasionally social ostracization [3]. Such emotional issues can be pronounced in aircrew flying multi-crew aircraft. Lastly, the unpredictable course and severity of the disease demands careful follow up of such individuals.

Both topical and oral medications are used in the treatment of psoriasis. Use of topical steroids for localized lesions is generally very effective. Even overnight or 24-hour occlusive therapy with these medications is highly beneficial [3]. Flying for such mild cases responding adequately to topical therapy should be permissible [5]. Both the aircrew under discussion were advised only topical medication and one of them was recommended a restricted flying category as his disease process was under control. On the other hand, side effects of oral medication used in treatment of psoriasis may preclude flying. Anti-mitotic drugs such as methotrexate can cause ataxia and hallucinations. The use of retinoic acid can cause liver toxicity, dry mouth, sore lips and conjunctivitis and hence the aircrew should be...
grounded if any of these medications are administered. Treatment with UV light therapy has sometimes been associated with nausea, dizziness, headache and cutaneous photosensitivity and should be looked for in aviators undergoing such therapy [3].

**Disposal**

A history of psoriasis is disqualifying at the time of recruitment. However, IAP 4303 is silent on the assessment of trained personnel with psoriasis [1]. Of 355 reported cases of psoriasis among aviators in the USAF only 7% were disqualified solely on account of psoriasis. However, none of the cases with psoriatic arthritis received a waiver and were disqualified for flying duties [3]. The US Army [4] has explicit guidelines stating: "a mild case of psoriasis localized to an area not affecting the aircrew members ability to wear or operate safety garments, mask or helmet and controllable with occasional use of topical steroids is readily waivered."

**Conclusion and Recommendations**

It is obvious that aviators with psoriasis will have to be evaluated on a case-to-case basis. Mild cases and those not affecting the use of flying clothing can possibly be returned to flying duties. However, it is essential that the aviation medicine specialist follow up the course of the illness during the period of observation and identifies the triggering factor(s) in a particular aircrew. Severe and extensive skin lesions, joint involvement and requirement of oral medications should be considered incompatible with flying duties.

**References**

1. Manual of Medical Examination and Medical Board IAP 4303 II Edition Air Headquarters, New Delhi. 1987; 2-8-1 and 5-8-1.