

ALLERGY AND SKIN DISEASES IN MUSICIANS

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Summary

In order to define a standard diagnostic protocol for managing allergic diseases in musicians, we conducted a literature search on this topic. The most frequent allergic disease in this special category of workers was contact dermatitis, always described in stringed and wind instruments players, involving the mouth and the hands. No other allergic disease directly related to musical instruments was reported.

The most frequently reported culprit substances were: colophony, exotic woods, nickel sulphate, varnishes, and propolis (bee glue).

Thus, being contact dermatitis the most frequent disease, a correct diagnostic approach to this problem in musicians should involve, in addition to clinical history and examination, the patch test with a specific panel of substances.

Finally, allergy in musicians involves additional problems: the virtual impossibility to avoid the offending substance, and the poor adherence to therapy due to lifestyle. In general, this specific allergologic problem seems to be underestimated, underdiagnosed and, as a consequence, poorly managed.

Key-words: Musicians - Players - Musical instruments - Allergic diseases.

INTRODUCTION

There are numerous characteristic symptoms that are common in musicians and are usually harmless marks of their profession. However, there are also some less common and more severe skin diseases due to either mechanical and physic noxae or to allergic contact reactions.

When such reactions occur, they may cause considerable discomfort and even disability.

Indeed, allergic problems in musicians have not been studied in detail and their prevalence in this category is not known. Probably, allergy in musicians is under-estimated and underdiagnosed undermanaged, and therefore poorly managed.

Noteworthy, allergy in musicians involves additional problems. First, the impossibility to avoid the sensitizing substances contained in the instruments, and second the poor adherence to therapy due to lifestyle.

Aim of this study was to investigate the presence of allergic disorders in musicians, as described in literature; in order to more clearly define the spectrum of pathologies in these particular workers. Moreover, we propose a standard diagnostic protocol to define and managing allergies in musicians.

MATERIAL AND METHODS

A systematic literature search was carried out. Relevant studies, published between 1960 and 2002, were identified by a computerized search strategy using MedLine and Embase databases. In addition, hand search of relevant journals and proceedings of internal medicine and specialistic medicine societies was performed. A careful review of the references cited in the articles was carried out. Finally, dissertation abstracts and Current Contents were also reviewed in order to identify recently published and unpublished studies.

Only those studies and case reports clearly focusing upon musician's allergy were included. Citations in any language were considered. The following key words were used: "musicians", "singers", "music",

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and "allergy". Inclusion of studies in this study was decided by a simple majority of all reviewers.

RESULTS

In general, the literature was very poor and little attention seems to have been de-voted to allergy problems in this category of workers. We found only 33 articles dealing with the topic (1-33); thirteen out of them were case reports (21-33).

The only allergic disorder reported was contact dermatitis, always in stringed and wind instruments players, involving the mouth and the hands. On the other hand, no other allergic disease (conjunctivitis, rhinitis, bronchial asthma, anaphylactic shock) directly related to musical instruments contact/use was ever described.

The most frequently reported culprit substances were: colophony (rosin), exotic woods (Makassar ebony, Cocobolo, African Blackwood, Indian Rosewood, ebony wood, Brazilian rosewood), nickel sulphate,

varnishes (especially those contained in instruments tongues), and propolis (bee glue), see also figure 1.

DISCUSSION

Professional musicians can be affected by non-allergic and allergic diseases, in-volving skin in particular, that may cause serious problems and ultimately put an end to their career (table 1 and 2).

The most common cause of skin alterations in musicians is the minor but repetitive physical trauma, resulting in folliculites, paronychia, callus formation, and minor wounds that sometimes become secondarily infected. One of the most common abnormalities is the "fiddler's nec", affecting violin and viola players. The condition consists of hyperpigmentation and lichenification on the left side of the neck just below the mandible, where the instrument is pressed during practice and performance. Paronychia are important occupational hazards of pianists and harpists. Callosities are characteristic of the way musicians grasp and hold their instruments. Drummers are especially prone to

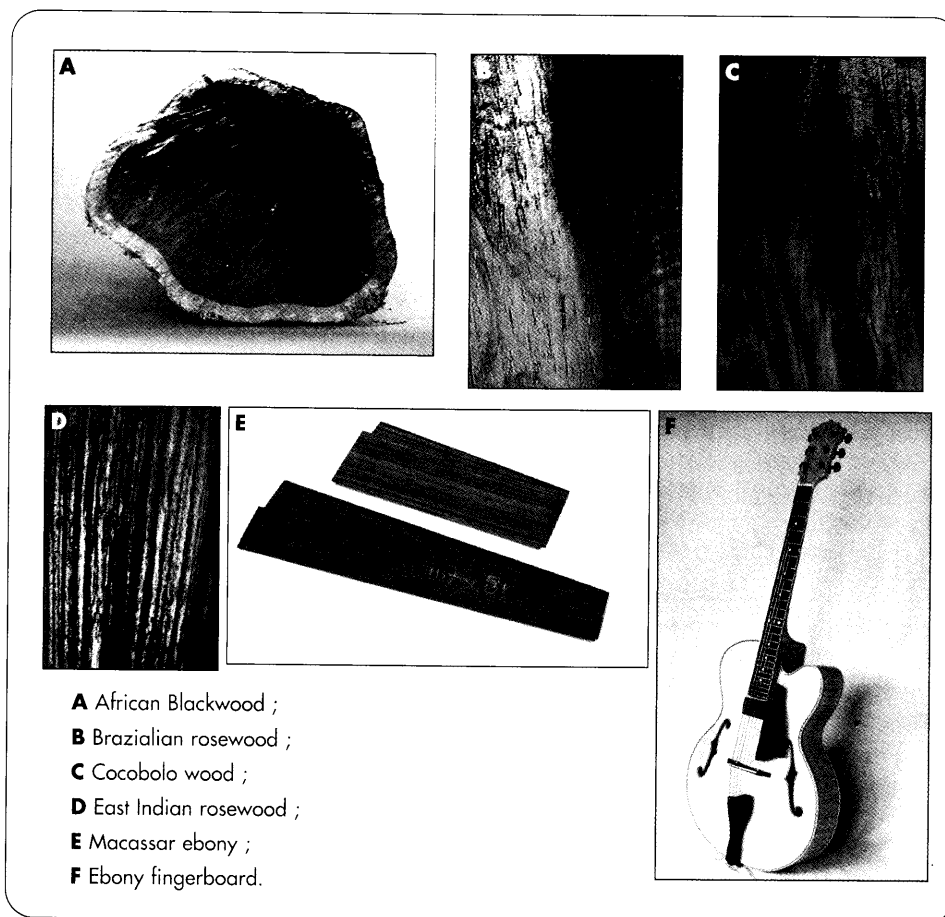


Figure 1 : "A variety of exotic woods used for made instruments contain sensitizers".

■ **Allergic Contact Dermatitis (see also table 2).**

■ **Injuries to Skin, Soft Tissue, and Bone :**

- "Gothic palate"
- Large palatal volume
- Narrow dental arch
- Dental morphology changes
- Velopharyngeal stress incompetence
- Ischemia, hyperkeratosis and cheilitis of the lips
- Rupture of the orbicularis oris muscle or "Satchmo's syndrome"
- Epidermal hyperplasia or callus
- Garrod's pads
- Blisters, abrasions, and skin bleeding
- Small tears of the oral mucosa

■ **Physiologic and Emotional Problems :**

- Hyperhidrosis (excess sweating)
- Abnormalities of saliva production (hypersalivation, xerostomia)
- Anxiety

■ **Infectious Diseases**

- Herpes labialis
- A, B, Epstein-Barr virus, and Cytomegalovirus hepatitis
- Bacterial infections

Table 1 : "Skin diseases of musicians : a complex spectrum".

- > "Fiddler's Neck" (folliculitis, lichenification, acneiform lesions, hyperpigmentation below the angle of the jaw) : violinists and violists.
- > "Fiddler's fingers" or Calluses (Garrod's pads) : violin, viola, cello, double bass, saxophone, clarinet, oboe, drum, bassoon, trombone, tuba, harp, french horn, and guitar players.
- > Blisters, Abrasions and Bleeding : drummer's digits.
- > Paronychia : piano and guitar players.
- > Pizzicato paronychia: string players.
- > "Guitar nipple" (from pressure of the instrument against either breast) : guitarists.
- > Lip problems (calluses, hyperkeratosis, ulceration, maceration) : clarinetists, horn players, flutists, trumpets players.
- > "Satchmo's syndrome" or broken lips : trumpet players.
- > Oral changes ("Gothic palate", large palatal volume, dental morphology changes) : woodwind or brass players.
- > Chest anterior pain or "Chellist's chest syndrome" : chellists.

Table 2 : "Injuries caused by specific musical instruments".

developing calluses. Clarinet and oboe players develop a characteristic callosity on the midportion of the upper lip. Among horn players, a circumscribed atrophy of the upper lip may occur.

Allergic problems in general have not been specifically studied in musicians. Fish-bein *et al.* conducted an interesting study among 48 symphonic orchestras, administering a questionnaire to 2122 musicians.

They found a prevalence of 12% and 4% of respiratory allergy and asthma respectively (6), thus not different from that reported in the general population. On the other hand contact dermatitis is very typical.

When acute and chronic allergic sensitisation occur in a musician, it is almost always due to colophony (rosin). **Colophony** is used to wax the strings on various musical instruments to increase the attrition between the bow and the strings. Fisher described allergic contact dermatitis due to colophony on the hands of a violinist, and the role of abietic acid and its derivatives as sensitizers in the colophony (23). In addition, the dust may result in dermatitis on the face and neck. A common allergen such as **p-phenylenediamine** has been reported to cause allergic contact dermatitis when used for staining ebony chin rests of violins (22).

Allergic contact dermatitis to nickel sulphate has been described in many case reports about musician's allergy. Pincelli described a violinist in whom allergic dermatitis developed just below the angle of the right mandible, where the skin rubbed the metal clamp of the chin rest (17). A nickel patch test gave a strongly positive reaction. This patient was thought to have typical "fiddler's neck" and an allergic contact dermatitis to nickel sulfate. Machackova and Pock also reported a case of a cellist with nickel dermatitis (28).

For many years, **propolis** (bee glue) has been used to varnish violins and other stringed instruments (34). Stradivari is believed to have used it in the varnish of his stringed instruments (8). Therefore, propolis can be considered as a cause of contact allergy not only in the makers of stringed instruments but also in those who re-pair them.

Various **exotic woods** are present in musical instruments: Indian and Brazilian rosewood (violin, recorder, and other string and reed instruments), Makassar ebony (violin), Cocobolo and African blackwood recorder, oboe, and other reed instruments), and ebony wood (violin). These different exotic woods may cause allergic contact dermatitis and the patch tests with sawdust, diluted in white petrolatum, are specific diagnostic tool (7, 8, 24, 25, 26, 31).

Thus, being contact dermatitis the most frequent allergic disease, a correct diagnostic approach to this problem in musicians should involve, in addition to clinical history and examination, the patch test with a defined panel of substances (table III).

Finally, allergy in musicians involves two major additional problems: the virtual impossibility to avoid the

offending substance (contained in the instrument), and the poor adherence to therapy due to lifestyle. In general, the specific problem seems to be underestimated and possibly underdiagnosed.

Further studies are needed to assess the incidence and prevalence of allergic problems in musicians; and pragmatic studies are also required to assess the long term compliance in musicians.

Nickel Sulphate	Wood Alcohols	Colophony (rosin)
Cobalt	p-Phenylenediamine	Propolis (Bee glue)
Ebony (Diospyros sp)	Brazilian rosewood (Dalbergia ni-gra)	East Indian rosewood (Dalbergia latifolia)
Cocobolo wood (Dalbergia retusa)	African blackwood (Dalbergia melanoxylon)	Madagascar ebony (Diospyros celebica)

Table 3 : "The most common musician's allergens for perform a complete and specific diagnostic Patch testing".

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