

Short Communication

Allergic contact dermatitis from surgical paints

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Case Reports

Case no. 1

A 58-year-old woman, with a previous history of allergy to adhesive tapes, was operated on for a right knee prosthesis due to degenerative arthritis. Acute contact dermatitis began over the following days around the surgi-

cal incision, rapidly became blistered and spread all over the right lower limb. Patch testing was performed 6 months later with the European standard series, BetadineTM used before and during surgery, and ErciplexTM surgical paint and its components (Table 1), showing contact allergy to BetadineTM, povidone-iodine contained in BetadineTM, ErciplexTM, and colophonium among its components. Patch tests were also positive to

Table 1. Patch test results

	Case no. 1	Case no. 2	Case no. 3	Case no. 4
Betadine TM solution (as is)	+	–	–	NT
povidone-iodine 10% aq.	+	–	–	NT
colophonium 20% pet.	++	++	++	++
abitol 10% pet.	++	+	+	NT
abietic acid 10% pet.	–	+	–	NT
Erciplex TM 0.1% alc.	+	+	NT	NT
Erciplex TM components				
thymol 1% pet.	–	–	NT	NT
thymol 1% alc.	–	–		
ethyl alcohol 95° 70% aq.	–	–		
ethyl alcohol 95° 10% aq.	–	–		
Alphacopal TM 1% pet.	–	+		
Alphacopal TM 0.1% pet.	–	+		
Alphacopal TM 0.1% alc.	?+	+		
castor oil 10% ol. pet.	–	–		
castor oil 1% ol. pet.	–	–		
ether (as is)	–	–		
Braun TM surgical paint as is semi-open test	NT	NT	++	++
Braun TM paint components	NT	NT	NT	
acetone 10% aq.				–
dichloramine 0.05% pet.				–
castor oil (as is)				–
castor oil 10% ol. pet.				–
Alphacopal TM 10% aq.				+++
Alphacopal TM 1% aq.				++
Alphacopal TM 0.1% aq.				++
Alphacopal TM 10% pet.				++
Alphacopal TM 1% pet.				++
Alphacopal TM 0.1% pet				++

nickel and balsam of Peru (Myroxylon Pereirae), without any relevance to this recent eczema.

Case no. 2

A 50-year-old woman, with a previous history of allergy to adhesive tapes, had acute contact dermatitis soon after surgery for a right hip prosthesis (BetadineTM and ErciplexTM paint again having been used). It first began around the incision and then extended over the whole lower right limb over the following days. She had had surgery for a left hip prosthesis 1 year earlier and the same surgical paint had been used without any adverse reaction. Patch tests showed contact allergy to fragrance mix, with no relevance to her recent eczema. Patch tests were also positive to ErciplexTM and 2 of its components: colophonium (plus abitol and abietic acid) and AlphacopalTM (Table 1).

Case no. 3

A 42-year-old man, with a previous history of allergy to adhesive tapes, was operated on due to a traumatic Achilles tendon rupture. The skin had been disinfected with BetadineTM and BraunTM surgical paint with chloramine had been applied to the skin just before the operation. Acute contact dermatitis appeared over the following days on the ankle and rapidly extended all over the leg. Patch tests were performed 3 months later (Table 1) and showed contact allergy to the surgical paint, colophonium and abitol. The patient did not return for further tests with the paint components.

Case no. 4

A 19-year-old man had already had several operations since he was 14 for congenital patellar subluxation. He had never had any post-operative complications except for allergy to adhesive tapes. In July 1999, for a right tibial osteotomy, BraunTM surgical paint with chloramine was used. A severe bullous contact dermatitis began on the right knee over the following days and spread over the whole limb. Patch tests were positive to the surgical paint, colophonium and AlphacopalTM (Table 1).

Discussion

All 4 patients had allergic contact dermatitis from colophonium in surgical paints, 2 of whom were also allergic to AlphacopalTM.

The main allergenic fractions of colophonium are oxidized abietic acids (1). Contact allergy to colophonium affects 0.7% of the general population (2), 3.9% of colophonium workers and 6% of patients patch tested for contact dermatitis (3). Surgical paints containing colophonium permit adhesion between the skin and its sterile cover, allowing the incision to be made without skin contact. Post-operatively, removal of the sterile cover abrades the skin, residual varnish then being removed with ether and/or ethyl alcohol.

In 1979, Chabeau et al. (4) reported 8 cases of contact dermatitis due to surgical varnishes, all of whom were patch-test-positive to colophonium, and 1 also to thymol. A series of 16 such cases due to AlphacopalTM has also been reported (5). AlphacopalTM is a Manilla resin extracted from *Agathis alba*, a tree growing in Indonesia and the Philippines. In the series of Jost et al. (4), 13 out of 16 patients allergic to AlphacopalTM also had positive patch tests to colophonium, as did both our patients, suggesting cross-sensitization. There has been a recent report of similarly-elicited dermatitis from mastic, a resin obtained from *Pistacia Lentiscus* var *chia*, in a colophonium-negative patient (6).

Orthopaedic surgeons need to know not to use colophonium- or AlphacopalTM-containing surgical paints in patients who know that they are allergic to adhesive tapes.

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References

1. Karlberg A-T, Bergstedt E, Boman A, Bohlinger K, Lidén C, Nilsson J L G, Wahlberg J E. Is abietic acid the allergenic component of colophony? *Contact Dermatitis* 1985; 13: 209–215.
2. Nielsen N H, Menné T. Allergic contact sensitization in an unselected Danish population. The Glostrup allergy study, Denmark. *Acta Dermato-venereologica* 1992; 72: 456–460.
3. Farm G. Contact allergy to colophony. Clinical and experimental studies with emphasis on clinical relevance. *Acta Dermato-venereol* 1998; 201 (suppl): 1–42.
4. Jost T, Sell Y, Foussereau J. Contact allergy to Manilla resin. *Contact Dermatitis* 1989; 21: 228–238.
5. Chabeau G, Bejui J, Mesguich A, Jeune R, Perrot H, Martin P. Dermite allergique aux vernis chirurgicaux. *Ann Chir* 1979; 33: 441–444.
6. Wakelin S H. Allergic contact dermatitis from mastic in compound mastic paint. *Contact Dermatitis* 2001; 45: in press.