

Allergic contact dermatitis caused by cinchocaine

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A woman referred to our allergy department because of erythematopapular lesions in the perianal area and intergluteal fold, after several days application of Ruscus-Llorens[®] ointment for haemorrhoids. The injury area resulted in peeling until the ward disappears. In the present study, prick, intradermal, and patch tests were performed with a series of local anaesthetics, corticosteroids, preservatives, and Ruscus-Llorens[®]

ointment. Subcutaneous challenge test was performed with lidocaine and mepivacaine. Readings were positive in patch tests to cinchocaine (D2+/D4++) and Ruscus-Llorens (D2-/D4+). No immediate or delayed reaction was produced after subcutaneous challenge test. Members of amide group have been described as rare causes of sensitization. We have presented a case of contact dermatitis to cinchocaine and good tolerance to lidocaine and mepivacaine, and local anaesthetics amide groups also. Cross-reactivity within the amide group is not clear. This is the first case of sensitization to cinchocaine, where good clinical tolerability to other amide anaesthetics were confirmed by challenge test.

Case Report

A 32-year-old woman, referred to our allergy department because of erythematopapular lesions in the perianal area and intergluteal fold, after several days application of Ruscus-Llorens® (cinchocaine hydrochloride, prednisolone, ruscogenine, menthol, and zinc oxidase) ointment for haemorrhoids.

She received oral and intramuscular prednisolone, with improvement of her lesions in 20 days. The injured area resulted in peeling until disappearing.

She had suffered 3 similar previous episodes without known cause.

Materials and Results

Cutaneous tests

Prick and intradermal tests were performed with a series of local anaesthetics (Table 1) and corticosteroids. Readings at 20 min and on D2 were negative.

Patch tests were performed with the standard series of Grupo Español de Investigación de Dermatitis de Contacto (Spanish Group of Investigation of Contact Dermatitis), a series of preservatives and corticosteroids, local anaesthetics including cinchocaine (5% pet.), and Ruscus-Llorens® ointment (as is). Readings were positive in patch tests to Ruscus-Llorens® (D2-/D4+) and cinchocaine (D2+/D4++) (Table 2) with persistence of the lesion during 7 days (Fig. 1).

Subcutaneous challenge test

Written informed consent was given by the patient. A single-blind

Table 1. Series of local anaesthetics

	Prick test	Intradermal (mg/ml)	Intradermal
Procaine 1%	As is	0.2	2
Lidocaine 2%	As is	0.2	2
Mepivacaine 2%	As is	0.2	2
Articaine 40 mg/ml	As is	4	8
Bupivacaine 0.5%	As is	0.005	0.05
Ropivacaine	As is	0.0075	0.75
Tetracaine	As is		
Benzocaine	As is		
Ruscus-Llorens®	As is		

Table 2. Results of patch testing

	Vehicle	(%)	D2	D4	D7
Ruscus-Llorens®	As is		—	+	
Amide derivatives					
Mepivacaine	As is	2	+	++	++
Lidocaine	Pet.	5			
Bupivacaine	As is	5			
Prilocaine clorure	Pet.	5			
Ultracain® (articaine 2.6%)	As is	As is			
Quinoline derivate					
Cinchocaine		5	+	++	++
Ester derivatives					
Procaine clorure	Pet.	1			
Tetracaine clorure	Pet.	1			
Benzocaine	Pet.	5			
Standard series					
Caine mix	Pet.	7			
Parabene mix	Pet.	15			
Quinolines mix	Pet.	6			

subcutaneous challenge test was performed with lidocaine hydrochloride and mepivacaine hydrochloride. We administered progressively greater doses until reaching the therapeutic dose for each medication on different days. The doses were given with 30-min intervals from each other. No immediate or delayed reaction was produced in any of the tests.

Discussion

Members of the ester group of local anaesthetics are relative common causes of contact sensitization. In contrast, members of the amide group have been described as rare causes of sensitization (1, 2). Cross-reactivity within the ester group is common and well recognized (2). Cross-reactivity between member of the amide and ester groups, if exist, is scarce. The subject of cross-reactivity within the amide group is less clear. There are three possible groups of sensitization in the amide group of local anaesthetics: benzene ring, tiogenic ring, and quinoline derivative (Fig. 2).

There are references of cross-reactivity between lidocaine and mepivacaine (3, 4) with tolerance to articaine

by subcutaneous challenge test (5), or without reactivity by patch test (6).

Lidocaine, mepivacaine, prilocaine, and bupivacaine are members of amide group with a benzene ring, while articaine has a different ring (tiogenic ring) (Fig. 2).

There are fewer reports of sensitization to cinchocaine. One of the reports was about photosensitivity (7), another about systemic reactions, had concomitant sensitization to ester group (8), but no cross-sensitization to other amide local anaesthetics were referred in other reports (9–12).

We have presented a case of contact dermatitis to cinchocaine and good tolerance to lidocaine and mepivacaine, local anaesthetics amide groups also. This is the first time, at our acknowledgement, with confirmation of good clinical tolerability to other amides (lidocaine and mepivacaine) by challenge test, supposed in other studies where the absence on cross-sensitivity was confirmed only by patch test (9–12).

In our opinion it is important to confirm the tolerance of other anaesthetics by challenge test as shown in other studies (3, 5).

Cinchocaine (dibucaine) is a quinoline derivative (13), which has an



Fig. 1. Positive patch test with cinchocaine.

aromatic double ring structure in its lipophilic aromatic ring (Fig. 2). This difference from the other local amide anaesthetics, benzene ring and tio-genic derivatives, could explain the lack of cross-reactivity.

Cinchocaine and cloquinoxol, a topical antiseptic, are quinoline derivatives without cross-reactivity,

according to the results of this case and other studies (12).

Whereas there is report of diagnosis of sensitization to cinchocaine with caine mix (14), in our case, the sensitization to the amide group is not detected by standard series with caine mix (benzocaine 5%, ameto-caine 1%, and cinchocaine 1%),

a mixture proposed years ago (15), maybe because of the lower concentration in the mixture (1%) than if tested separately (5%).

Conclusion

To do the diagnosis of group amide anaesthetic allergy, it is necessary to test causative compound and each anaesthetic separately.

Cinchocaine 5% tested was shown to be more sensitive than the cinchocaine 1% proposed on caine mix.

We had confirmed good tolerance with other amide group component.

References

1. Weightman W, Turner T. Allergic contact dermatitis from lignocaine: report of 29 cases and review of the literature. *Contact Dermatitis* 1998; 39: 265–266.
2. Rietschel R L, Fowler J F. Local anaesthetics. In: *Fisher's Contact Dermatitis*, 5th edition, Philadelphia, Williams & Wilkins, 2001: 193–202.
3. Klein C E, Gall H. Type IV allergy to amide-type local anesthetics. *Contact Dermatitis* 1991; 25(1): 45–48.
4. Sanchez-Morillas L, Laguna Martínez J J, Reano martos M, Gómez Templeque P, Rojo Andrés E. Delayed-type hypersensitivity to mepivacaine with cross-reaction to lidocaine. *Contact Dermatitis* 2005; 53: 352–353.
5. Bircher A J, Lagauer Messmer S, Surber C, Ruffy Th. Delayed-type hypersensitivity to subcutaneous lidocaine with tolerance to articaine: confirmation by in vivo and in vitro tests. *Contact Dermatitis* 1996; 34: 187–189.
6. Duque S, Fernandez L. Delayed-type hypersensitivity to amide local anesthetics. *Allergol Immunopathol* 2004; 32: 233–234.
7. Urrutia I, Jáuregui I, Gamboa P, González G, Antépara I. Photocontact dermatitis from cinchocaine (dibucaine). *Contact Dermatitis* 1997; 39: 139–140.
8. Marques C, Faria E, Machado A, Gonzalo M, Gonzalo S. Allergic contact dermatitis and systemic contact dermatitis from cinchocaine. *Contact Dermatitis* 1995; 33: 443.
9. Lee A Y. Allergic contact dermatitis from dibucaine in Proctosedyl® ointments without cross-sensitivity. *Contact Dermatitis* 1998; 39: 261.
10. Erdmann S M, Sachs B, Merk H F. Systemic contact dermatitis from cinchocaine. *Contact Dermatitis* 2001; 44: 246–247.
11. Hayashi K, Kawachi S, Saida T. Allergic contact dermatitis due to both chlorpheniramine maleate and dibucaine hydrochloride in an over-the-counter medicament. *Contact Dermatitis* 2001; 44: 56–57.

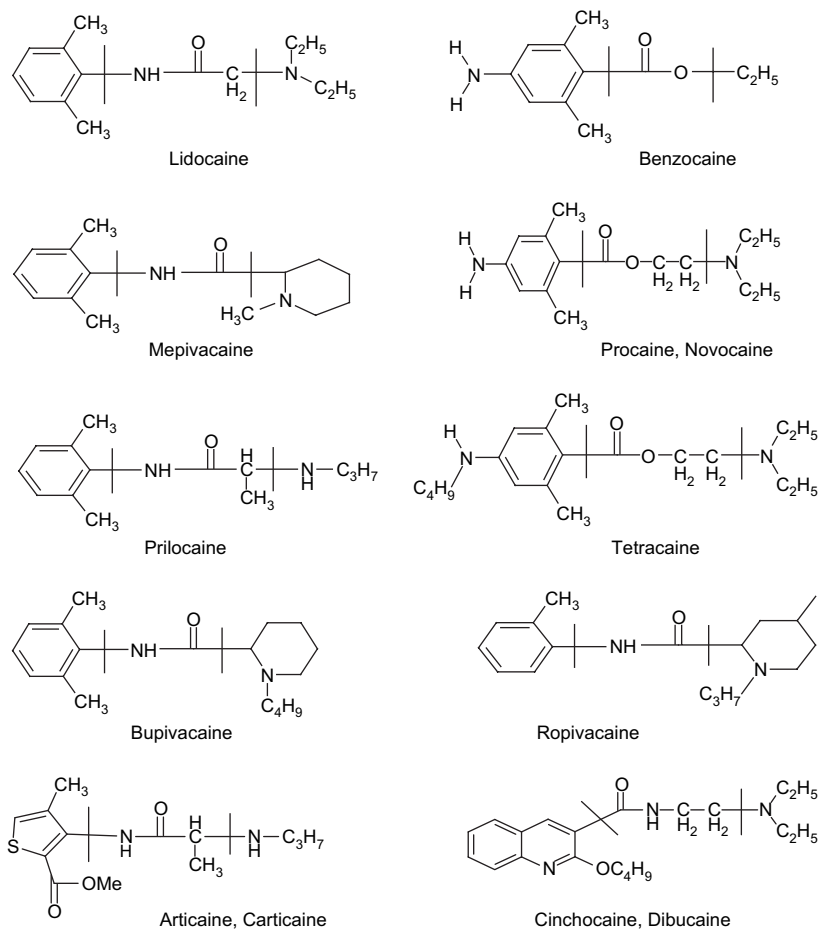


Fig. 2. Chemical structures.

12. Kearney C R, Fewings J. Allergic contact dermatitis to cinchocaine. *Australas J Dermatol* 2001; 42: 118–119.
13. Bircher A J, Surber Ch. Allergic contact dermatitis from acylamide local anesthetics. *Contact Dermatitis* 1999; 40: 292–293.
14. Nakada T, Masafumi I. Allergic contact dermatitis from dibucaine hydrochloride. *Contact Dermatitis* 2000; 42: 283.
15. Beck M H, Holden A. Benzocaine – an unsatisfactory indicator of topical local anaesthetic sensitization for the UK. *Br J Dermatol* 1988; 118: 91–94.

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