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CUTANEOUS CALCIUM SALT DEPOSITION AFTER ALLERGENIC EXTRACT TEST INJECTIONS

By

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The diagnostic use of allergenic extracts is sometimes attended by complications. In the extant literature a couple of cases are described where intracutaneous injections of such extracts have caused anaphylactic reactions and even death (1). But, so far as I am aware, the complication to be reported—deposition of calcium salt in the epidermis—has not been discussed hitherto.

At this clinic during the course of 1955, we noticed that some patients had a peculiar sort of yellowish-white deposits (Fig. 1) in the epidermis at the sites of injection of various allergenic test extracts. The deposits were at most as large as a grain of rice and appeared about 2.5 to 4 weeks after the patient had undergone a skin test. The complication was observed in altogether eight women and one man among 2000 tested subjects but its true incidence was probably much higher. Some of the affected patients had in fact not become aware of their cutaneous incrustations, most likely because the test injections were routinely given in the skin on the upper part of the dorsum. Some patients exhibited these cutaneous deposits at the sites of all injections, in others they were visible at some injection sites only. In six patients the deposits occurred also at the site of injection of the vehicle—such an injection was given routinely as a negativ control. All the patients



Fig. 1.

Cutaneous calcium salt incrustations, gross appearance.

TABLE 1

Specification of calcium salt incrustations observed in patients given intracutaneous tests.

Sex	Age, years	No of injection sites with (+) and without (÷) visible calcium salt incrustation		Approximate size	Time for initial observation, weeks after test	Time for disappearance of last calculus, months after initial observation
M	20	33	0	large pinhead to rice grain	3	2
F	33	33	0	pinhead	3	3
F	41	2	31	pinhead	4	2
F	33	10	23	large pinhead	2.5	3
F	24	33	0	large pinhead to rice grain	4	4
F	29	6	0*	pinhead	3	4
F	28	33	0	pinhead	3	3
F	26	16	17	small pinhead	3	2
F	18	6	27	small pinhead	3	3

* = incomplete test.

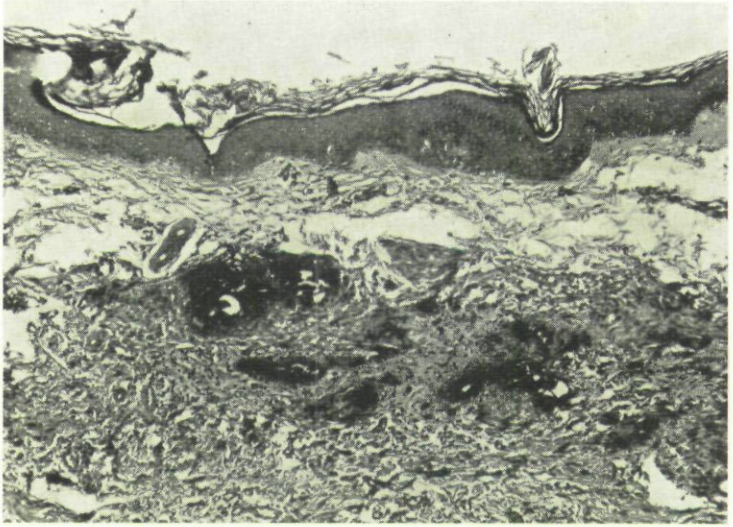


Fig. 2.

Cutaneous calcium salt incrustations (dark parties), microscopic appearance $\times 75$. Van Kossa's staining.

were kept under regular observation, and after a fortnight or so the cutaneous deposits were seen to be smaller. Ultimately, after 3 or 4 months, they vanished entirely although no treatment of any kind had been given (Table 1).

Resembling xanthomata, the incrustations were at first thought to be composed of cholesterol. However, chemical analysis of specimens that had been dissected out revealed that they consisted of calcium salts and contained no cholesterol. This was verified by staining (with van Kossa's method) for calcium salts a biopsy specimen of skin containing such deposits (Fig. 2).

However, it remained to be discovered what had caused these deposits. No similar sequels had been observed after the approximately 6000 intracutaneous tests with allergenic extracts carried out before 1955 at this clinic. The preponderance of women among the patients was attributed to cosmetic reasons and considered a pure coincidence. Perusal of the re-

cords showed, however, that two patients had been tested previously, one of them several times, with no such complications. Considering that lime incrustations also had been present at the sites where the vehicle alone had been injected, the causative factor must have been some substance added to the vehicle—which consisted of 0.9 per cent NaCl—and accordingly present in all the allergenic extracts. The only constituent common to all was the preservative. Prior to 1955, 0.5 per cent of phenol had been used as a preservative which, however, had been replaced by 2 p.p.m. of phenylmercuric acetate some time before the complication under discussion was first seen. All cases of cutaneous calcium salt deposition had occurred after we had begun using the latter preservative.

We consequently reverted to the use of phenol as a preservative for our allergenic extracts, and after that the complication was no longer observed. Since there apparently was no intrinsic factor common to these patients, this seems to indicate that phenylmercuric acetate may have been a factor contributing to the observed cutaneous deposition of calcium salts. If so, it would seem advisable to avoid the use of phenylmercuric acetate for preserving allergenic extracts.

SUMMARY

The author describes peculiar deposits observed in the epidermis at the site of intracutaneous allergenic extract injections made two to four weeks previously. Two to four months after their appearance the deposits vanished spontaneously. The author demonstrates that the deposits had the form of thin incrustations composed of calcium salts and that causation probably was associated with the use of phenylmercuric acetate as a preservative for the allergenic extracts.

REFERENCES

1. Bruun, E.: *Acta Allergologica*, *VIII*, 134 & 143, 1955.
2. Romeis, B.: *Mikroskopischer Technik*, § 1637, Bischer-Oldenburg, München 1948.

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