

Pulsating Fixed Drug Eruption Due to Tetracycline

Lawrence Charles Parish and
Joseph A. Witkowski

*University of Pennsylvania School of Medicine
Philadelphia, Pennsylvania, USA*

Received April 11, 1978

Abstract. A 29-year-old woman developed a pulsating, fixed drug eruption following a year's course of both oral and parenteral administration of tetracycline for pharyngitis. Patch testing of tetracycline powder under occlusion at the site confirmed the diagnosis.

Key words: Drug Reactions; Tetracycline; Fixed Drug Eruption

Tetracycline must be a remarkably safe drug, when one considers that over a thousand tons of the antibiotic and its derivatives are consumed yearly (1). We are amazed that there are not more numerous reported adverse cutaneous reactions; in fact, dosages can approach 4 g daily for many months without apparent ill effect. In the early days of tetracycline therapy, black hairy tongue, nausea, diarrhea and candidal overgrowth were well known. Later, the tendency for tetracycline to stain developing teeth was discovered while photosensitivity and onycholysis were subsequently added to the warning information on the package insert. Only within the past decade, however, have scattered reports appeared incriminating tetracycline as a cause of fixed drug eruptions (2-11).

Recently, we have had the opportunity to study a patient with a most unusual form of fixed drug eruption caused by tetracycline—a pulsating, fixed drug eruption.

CASE REPORT

A 29-year-old white woman was referred because of a pruritic eruption on her arm. She had been treated with 2 ml of tetracycline intramuscularly in the area 2 weeks previous for pharyngitis. The pharyngitic condition had been almost constant for a year, requiring numerous courses of antibiotics, including tetracycline both by mouth and by injection. Within one hour after receiving the last injection, she developed ecchymosis at the site. The area gradually enlarged and became red and pruritic. Her physician, observing the erythema and local heat, prescribed tetracycline 250 mg q.i.d. for the possible cel-

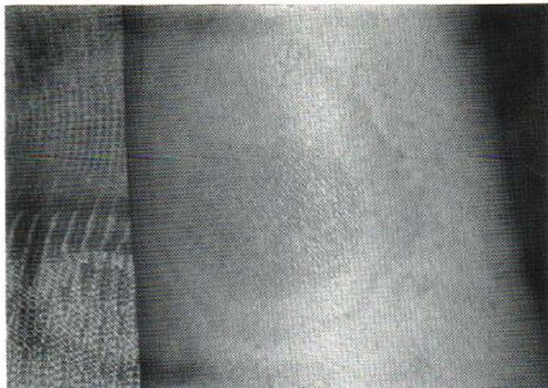


Fig. 1. The lesion at 4 days, resembling erythema multiforme eruption. Pulsating nature not captured on photograph.

lulitis. Halocinonide cream was recommended for the itching. When there was no improvement after 4 days, ampicillin 250 mg q.i.d. was introduced.

Four days later she was seen by one of us (L. C. P.) at which time she had an 8 cm sharply defined red scaly and edematous plaque covering the anterior and lateral aspects of the right arm. Photography of the lesion (Fig. 1) called attention to its pulsating nature, as the lesion moved in and out of focus with the arm restrained on the examining table. A complete blood count, erythrocyte sedimentation rate, and anti-streptolysin titer failed to reveal any evidence of an infectious process. Betamethasone benzoate gel was recommended for topical application t.i.d., and all oral medicines stopped. Four days later, the lesion had become less tender and red and had assumed more of the characteristics of a fixed drug eruption. Over the next few weeks the lesion involuted, leaving slight hyperpigmentation.

A patch test with tetracycline powder applied to the pigmented area resulted in erythema, ulceration and

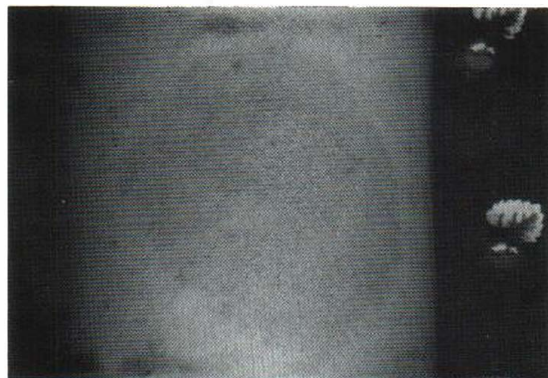


Fig. 2. The lesion at 8 days, showing less pronounced erythema, resembling fixed drug eruption.

Table 1. *Patch tests applied under occlusion*

	Site	Time in weeks from onset of fixed drug eruption	Readings		
			24h	48h	72h
Tetracycline capsule HCl (Achromycin V 250 mg powder)	Area of fixed drug eruption	9	4+ (ulceration)		
Ascorbic acid	Back	13		0	0
Lactose	Back			0	0
Magnesium chloride	Back			0	0
Tetracycline HCP USP	Back			0	0
Procaine HCL	Back			0	0
Magnesium stearate	Back			0	0
Ethylenediamine	Back			0	0
Caine mix (control)	Back			0	0
AAD screening tray: 27 chemicals representing the most common contactants	Back	13	0 ^a	0	
Tetracycline	Area of fixed drug eruption	13	1+ (redness) at 12 hours	1+	

^a Patch removed at 24 hours by patient.

marked pruritus within 24 hours. Patch tests with the components of intramuscular tetracycline applied to normal skin were negative, as were the AAD screening tray (Table 1).

DISCUSSION

Fixed drug eruptions are most commonly caused by phenolphthalein and barbiturates. Acetanilid, acetophenetidin, aminopyrine, antimony salts, arsenicals, bismuth, cinespaen, chlortetracycline, emetine, gold salts, iodides, opecac, oxytetracycline, para-aminosalicylic acid, penicillin, quinacrine, quinidine, salicylates, and sulfonamides are all less common causes (12, 13). Only infrequently is tetracycline the offending agent. In a combined practice period of 30 years, fewer than 10 patients with fixed drug eruption due to tetracycline have been observed.

Of interest was the marked reaction to tetracycline at the site of the fixed drug reaction. Patch-testing on the back did not cause any reaction. This would suggest that the triggering substance remained at the site. After several weeks, less remained and the repeat patch test revealed diminished reactivity. This information made us discount the possibility of an Arthus type reaction or even an erythema multiforme-like drug reaction. Although we would have liked to have had

histopathological confirmation, the patient refused a cutaneous biopsy.

To our knowledge, no one has ever reported a pulsating lesion before (14). We would attribute this to the intensity of the response. Whether this observation suggests a relationship to erythema multiforme is not known, but early reports of fixed drug eruptions were considered to be persistent erythema multiforme reactions with pigmentation (15, 16).

Although the basic mechanism of the fixed drug eruption is usually stated to be allergic, this is still somewhat clinically inferential. Consistent with the allergic concept is the usual incubation period of from one to two weeks before sensitization becomes manifest. Once sensitization is established, subsequent use of the offending agent elicits the reaction within minutes to hours. In most instances, only the agent itself or a chemically related substance is capable of producing a fixed drug eruption on the sensitized person. The tendency to react in this fashion usually persists for years. When positive, patch tests furnish good presumptive evidence of an allergic mechanism (14).

The most common sites for a fixed drug eruption are the trunk and proximal parts of the extremities. The mouth, eyes and urethra are less commonly involved. We feel that the trauma of injection de-

terminated the target site in our patient. A similar mechanism was postulated in patients with fixed drug eruptions due to tetracycline administered for non-gonococcal urethritis (9).

REFERENCES

- Schindel, L. E.: Clinical side effects of the tetracyclines. *Adv Antibiot Chemotherap* 13: 400, 1965.
- Welsh, A. L.: Crossed fixed drug eruption from three antibiotics. *AMA Arch Dermatol* 71: 521, 1955.
- Post, C. F. & Dougherty J.: Fixed drug eruption caused by tetracycline hydrochloride. *Arch Dermatol* 36: 158, 1962.
- Reiner, E. & Mandel, E.: Diagnosis: Fixed drug eruption from tetracycline (Achromycin). *Arch Dermatol* 88: 159, 1963.
- Minken, W., Cohen, J. H. & Frank, S. B.: Fixed drug eruption due to tetracycline. Report of a case. *Arch Dermatol* 100: 749, 1969.
- Delaney, T. J.: Tetracycline-induced fixed drug eruptions. *Br J Dermatol* 83: 357, 1970.
- Tarnowski, W. M.: Fixed drug eruption due to tetracycline. *Acta Dermatovener (Stockholm)* 50: 117, 1970.
- Brodin, M. B.: Fixed drug eruption due to tetracycline. *Arch Dermatol* 101: 621, 1970.
- Csonka, G. W., Rosedale, N. & Waldken, L.: Balanitis due to fixed drug eruption associated with tetracycline therapy. *Br J Vener Dis* 47: 42, 1971.
- Armati, R. P.: Fixed drug eruption due to tetracycline. A report of a case. *Aust J Dermatol* 14: 75, 1973.
- Brown, S. T.: Tetracycline Balanitis: Fixed drug reaction. *JAMA* 227: 801, 1974.
- Abramowitz, E. W. & Noun, M. H.: Fixed drug eruptions. *Arch Dermatol Syphilol* 35: 875, 1937.
- Alexander, H. L.: Reactions with Drug Therapy, pp. 44-47. Philadelphia, Saunders, 1955.
- Welsh, A. L. & Ede, M.: The fixed eruption. *Arch Dermatol* 84: 166, 1961.
- Abramowitz, E. W.: Erythema multiforme, associated with cutaneous pigmentation (Melanin). *J Cut Dis* 36: 11, 1918.
- Brocq, L.: Éruption érythémato-pigmentée fixe due à l'antipyrine. *Ann Dermatol Syphiligr* 5: 308, 1894.

Sutton's Summer Prurigo of the Elbows

James E. Rasmussen

State University of New York at Buffalo and
Children's Hospital of Buffalo

Received June 20, 1978

Abstract. Seasonal variations in skin diseases are most noticeable in those parts of the country with significant changes of seasons. For the past 5 years, I have noticed an unusual recurrent prurigo of the elbows which was originally described by Sutton. This disease, which I feel is related to atopic eczema, usually occurs on the elbows of children during the first few weeks of good spring weather. The disease appears as a papular eczematous dermatitis which is usually limited to the elbows but may also affect the knees, hands and chest. It responds well to topical corticosteroids but has a tendency to recur each spring for several years.

Key words: Seasonal dermatosis; Summer; Prurigo

Few skin diseases are exclusively seasonal. Many, such as acne, atopic eczema and psoriasis, are influenced by seasonal changes in temperature, humidity and intensity of ultraviolet irradiation, but can persist throughout the year. During the past 5 years at the Children's Hospital of Buffalo, I have seen 13 patients with a distinctive, pruritic dermatitis of the elbows that recurred yearly between April and June. This disease resolves spontaneously in 6 to 10 weeks and recurs every year at a time coinciding with the first prolonged spell of good spring weather. Since this disease is common

Table I

	No. of patients
Black	3
White	10
Male	8
Female	5
Age (mean)	6 (4-10)
Average no. of yearly recurrences	3
Atopic eczema	3
Distribution	
Elbows	13
Knees	5
Trunk	3
Face	1