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Letter to the Editor

A Systemic Sarcoidosis Revealed by Sarcoidal Granulomatous Reaction after Tattooing

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Dear Editor-in-Chief

One of the common and important granulomatous reactions after tattooing is sarcoidal type. Sarcoidal type granulomatous reaction more commonly could be only an isolated cutaneous inflammatory reaction to tattoo as an exposed foreign body or in fewer cases a manifestation of an evident or obscure systemic granolumatous disorder mostly systemic sarcoidosis or a prodromal sign of a future systemic involvement (1, 2).

Inflammatory reaction can occur in tattoos with wide range of unpredictable cutaneous reactions, including eczematous, lichenoid, granulomatous, scleroderma, sarcoidal, pseudo epitheliomatous, pseudo lymphomatous, and photo allergic reaction (3, 4).

Tattoo can induce granulomatous reactions like foreign body, sarcoidoal reactions hypersensitivity reaction type, and tuberculoid type (1-4). Sarcoidal reactions appear as prirutic or tender papules and nodules are generally limited to tattooed skin (5). In review literature, there are some coexistence studies of tattoo and systemic sarcoidosis (2, 6-8); it seems necessary to evaluate all patients with tattoo reaction to recognize any sign of underlying systemic sarcoidosis.

We reported cases of sarcoidal reaction following tattoo. Patients referred to Skin and Stem Cell Research Center and Imam Khomeini in Tehran, Iran (2013-2016) with a skin biopsy confirming diagnosis granulomatous tattoo reaction (sarcoidal type or foreign body type) were evaluated. Patients underwent to laboratory and para-clinic evaluations for detecting any evidence of systemic sarcoidosis. Of 30 patients with cutaneous tattoo granulomatous reaction, 18 patients showed a sarcoidal type granulomatous reactions, 7 showed systemic sarcoidosis (6 pulmonary involvements and 1 cardiac morbidity). All patients were female except one (Mean age: 44.96 yr) and had been undergoing cosmetic eyebrows tattoo other than 3 patients who had tattoo on lip and eyebrow (2 cases) and eyelid (1 case). Interval between tattooing and its reaction in sarcoidal granuloma group was 1-12yrs (mean: 5.49 yr). Pulmonary involvement investigated both clinically and Para clinically via CXR and chest CT was observed in 6 patients presenting with hilar lymphadenopathy, pulmonary infiltration and fibrosis.

Complete blood count in 28 cases was normal and in 2 was positive. Calcium in 27 cases was normal and in 2 was high (one case was unknown). Erythrocyte sedimentation rate in 21 cases was normal and in 8 was high (one case was unknown). Biopsy results was "sarcoidal type granulomatose tattoo reaction" for 18 cases and "foreign body type granulomatose tattoo reaction" for 12. Angiotensin converting enzyme level assessment showed that 25 cases was normal and in 4 was high (one case was unknown).

In sarcoidal reaction group, laboratory investigations revealed no positive PPD test, increased levels of ACE in 4 cases, increased levels of ESR in 7, CBC change in 2 also hypercalcemia in 2 patients. Five patients had other concurrent cutaneous involvement (4 cases of erythema nodusum (EN) and 1 case of deep vein thrombosis (DVT). Table 1 shows the color, site of tattoo reaction and treatment.

Table 1: Demographic, disease-related clinical, histopathological, laboratory and therapeutic characteristics

Case	*Color*	*Site of tattoo reaction*	*Treatment*
1	LB	Eyebrow	T+IL
2	DB	Eyebrow	T+IL+SS
3	B&P	Eyebrow	T+IL+SS
4	DB	Eyebrow	T+IL
5	DB	Eyebrow	T+IL+SS
6	DB	Eyebrow	T+IL
7	DB	Eyebrow Lip	-
8	LB	Eyebrow	T+IL
9	DB	Eyebrow	IL
10	DB	Eyebrow	T+IL+SS
11	DB&P	Eyebrow Lip	T+IL
12	DB	Eyebrow	T+IL
13*	DB	Eyelid	T+IL+SS
14	BL	Eyebrow	T+IL
15	BL	Eyebrow	T+IL
16	DB	Eyebrow	T+IL+SS
17	R&B	Eyebrow	T+IL+SS
18	R&B	Eyebrow	IL+SS
19	DB	Eyebrow	T+IL
20	B	Eyebrow	IL
21	B	Eyebrow	IL
22	B	Eyebrow	IL
23	B	Eyebrow	IL
24	B	Eyebrow	IL
25	B	Eyebrow	IL
26	B	Eyebrow	IL
27	B	Eyebrow	IL
28	B	Eyebrow	IL
29	B	Eyebrow	IL
30	B	Eyebrow	IL

LB: Light Brown, DB: Dark Brown, B: Brown, P: Pink, BL: Black, R: Red, IL:Intralesional Steroid Injection, T: Topical Potent Steroid, SS: Systemic Steroid

One of the important granulomatous reactions after tattooing is sarcoidal type as an exposed foreign body. Sixty percent of cases had sarcoidal type reaction and about 23% had a systemic sarcoidosis with a prominent cutaneous. Evaluation and follow up of all the patients with cutaneous signs of granulomatous tattoo reaction is necessary for ruling out coexistent or evolving future systemic sarcoidosis.

Conflict of interest

The author declares that there is no conflict of interest.

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