widely scattered over the whole body surfaces. The lesions are painless, soft and compressible, bluish nodules and in most cases the number of tumors are not so many, rarely exceeding 100 in number (5, 6). Therefore the case presented here is unique even as a localized form of multiple glomus tumors.

The total number of about 300 painless, small, red papules is unusual in the localized form of multiple glomus tumors. Cases of multiple glomus tumor presenting numerous papules have been reported (5, 6). For example a 71-year-old female patient described by Larsen & Hage (5) had 500 papules. However, such numerous lesions are noted only in the generalized form. Furthermore their size is larger and their colour is more bluish than in our case. To our knowledge, no case with such a large number of small red papular lesions has been reported in the localized form of multiple glomus tumor. The present case seems to constitute a distinctive form of localized multiple glomus tumors.

REFERENCES

1. Jelinek JE. Aspects of heredity, syndromic associations, and course of conditions in which cutaneous lesions occur solitarily or in multiplicity. J Am Acad Dermatol 1982; 7: 526–540.
2. Tarnowski WM, Hashimoto K. Multiple glomus tumours. An ultrastructural study. J Invest Dermatol 1969; 52: 474–478.
3. Sluiter JTF, Postma C. Multiple glomus tumors of the skin. Acta Derm Venereol (Stockh) 1959; 39: 98–107.
4. Hueston JT. Multiple painless glomus tumors. Br Med J 1961; i: 1210–1212.
5. Larsen FS, Hage E. Multiple glomus tumours. A report of a family in Denmark. Acta Derm Venereol (Stockh) 1979; 59: 180–182.
6. McEvoy BF, Waldman PM, Tye MJ. Multiple hamartomatous glomus tumors of the skin. Arch Dermatol 1971; 104: 188–191.

Pustular Psoriasis of v. Zumbusch Type Associated with Recurring Cholestatic Jaundice

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Aronsson A, Nilsson Å. Pustular psoriasis of v. Zumbusch type associated with recurring cholestatic jaundice. Acta Derm Venereol (Stockh) 1986; 66: 164–167.

A 46-year-old man with pustular psoriasis and recurring episodes of severe cholestatic liver disease is described. Six icteric periods have occurred parallelling high activity of the skin disease. *Key words: Pustular psoriasis; Liver disease.* (Received June 20, 1985.)

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The generalized pustular variety of psoriasis, GPP, v. Zumbusch type, is a severe disease with flares of widespread erythema followed by pustulation—associated with high fever, leucocytosis and systemic upset. The illness has often a protracted course and may be fatal. Hepatic, renal and mucosal involvement in GPP is occasionally observed.

CASE REPORT

A 46-year-old, healthy man has had mild psoriasis since youth. In 1953, 1955 and 1968 he had attacks of GPP, provoked by topical mercury preparations. During the following years he had repeated episodes with localized pustular flares, often in association with upper respiratory tract infections.

Table I. *Variations in leucocyte count and liver function tests*

Periods with clinical symptoms are indicated (GPP). WBC white blood cell count 4.0–10.0×10^9. BIL bilirubin 3–20 μmol/l. ALP alkaline phosphatase 0.8–4.6 μkat/l

		GPP		GPP				GPP		GPP		GPP	
Date (month/year) ...	12/76	4/77	12/79	4/81		5/81	11/81	9/82	2/83	6/83	11/83	12/83	6/84
WBC, 10^9/l	8.2	15.1	9.0	20.2	36.5	27.6	9.5	26.8	7.5	30.0	6.8	17.1	9.2
BIL, μmol/l	14	18	12	97	148	127	21	180	20	169	32	126	17
ALP, μkat/l	3.5	8.5	3.5	9.1	15	35	9.3	11	7.8	11	6.8	12	7.5

In 1975 he had a long period of relapsing widespread pustular eruptions with signs of systemic toxicity. The liver function tests were transiently abnormal, but there was no jaundice. In 1977 he had another bout of severe GPP with the same clinical pattern as before. In spring 1981 he caught a cold and suffered a severe relapse. This time he was very ill with clearly visible jaundice, vomiting, septic fever, tachycardia with signs of hypotension, renal impairment and electrolytic imbalance.

He suffered from repeated bouts of extensive pustulation. Other causes of hepatitis—such as infectious, immunological, obstructive or malignant diseases—were excluded. After two months of hospital care the liver tests were normalized with exception of a remaining increase of ALP (alkaline phosphatase) and γ-GT (glutamyltranspeptidase).

In the summer of 1982 the patient again suffered from exacerbations of v. Zumbusch type, accompanied by jaundice and signs of cholestasis. PUVA treatment was started in October 1982. The patient was then free from symptoms until next summer, when he again had recurring attacks of GPP with the same clinical course as earlier. The PUVA treatment that had been given continuously, although with low intensity, since October 1982, was again intensified. The last severe attack, until now, was preceded by arthralgias and, as before, the patient suffered from systemic manifestations and was icteric.

Laboratory investigations

During the exacerbations the ESR was increased and the patient had a normocytic anemia. The WBC counts and the results of some of the liver function tests are given in Table I. During relapses there was a leucocytosis (15.1–36.5×10^9/l mainly polymorphonuclear leucocytes). Bilirubin values were 97–180 μmol/l, which returned to normal during remission. Cholestatic parameters, ALP and γ-GT, followed a similar course, but did not become fully normalized after the last bouts, whereas the modest increases in transaminase levels did so. LD (lactate dehydrogenase) and amylase levels were normal. Serum creatinine values were mostly within the normal range, except in April 1981 when a peak value of 308 micromoles was observed. Repeated analyses of plasma proteins indicated inflammatory activity, but not a pattern indicative of liver disease. Transient hyperimmunoglobulinaemia (maximum IgG = 20.8 g/l) was sometimes observed. Tests for ANA (antinuclear antibodies) and for antibodies against mitochondrial, smooth-muscle and glomerular antigens were negative. Alpha fetoprotein level was normal. Repeated bacteriological cultures from throat, blood, urine etc. have been negative. Hepatitis of viral origin has been excluded.

Liver scan revealed slight irregularities in the parenchyma. X-ray of the gall-bladder showed cellular detritus in the bladder. Two ultrasonic examinations (1981 and 1982) showed normal morphology of the liver and biliary system. ERCP (endoscopic retrograde cholangio-pancreaticography) in 1982 also showed normal morphology and function of the biliary ducts. Cytological examination of the liver cells showed minimal changes such as small fat droplet inclusions. Liver biopsies, performed with the Menghini technique, showed rather discrete changes. In 1982 a very mild fibrosis and slight cholestasis were observed. In 1983 the findings were accentuated with signs of a more distinct cholestasis, portal fibrosis and also some proliferation of ductules. Skin biopsy for direct immunofluorescence assay did not give evidence of immunological disease or primary biliary cirrhosis.

DISCUSSION

The clinical course is consistent with the classical form of pustular psoriasis of v. Zumbusch type. Since 1975 there is evidence of transient disturbance of the liver function,

and since 1981 jaundice of a cholestatic nature is observed, concurrent with the flares of GPP. Clinically there is a convincing association between the activity of the skin disease and the bouts of cholestatic liver disease. Our investigations have excluded any other systemic disease or possible etiological factor, such as drugs or alcoholic intake.

Liver changes concomitant with psoriasis are proposed by many investigators (1), but denied by others (2). Concerning pustular psoriasis, several authors have reported liver changes during severe flares (3, 4).

In the review of Baker & Ryan (5) on pustular psoriasis in 104 cases, there are no reports of liver disease. In the follow-up (6) two deceased are described with signs of hepatic failure. These patients were, however, treated with methotrexate. In a later study by the same authors (7), "toxic" liver damage is reported, which subsided when the pustular psoriasis was under control.

In a study of 13 cass of GPP, Lindgren & Groth (8) observed one patient who had increased serum transaminase levels during a particularly severe exacerbation. They also noticed, as have other investigators (9), that a few patients had various types of mucosal involvement.

Gordon et al. (9) reported four cases of GPP with significant mucosal lesions parallelling the pustular attacks. In one patient an elevated value of ALP was noticed, returning to normal after improvement. Shelley (3) reported one patient with severe GPP, who had elevated values of ALP, bilirubin and transaminases during exacerbations. Liver biopsy revealed changes classified as pericholangitis. The liver disease was supposed to be due to the dermatological illness.

In a study by Braverman (10) another case was reported where each flare of GPP was followed by pathological liver function tests. Warren (4) published details of a case of GPP with cholestatic jaundice and acute tubular necrosis.

As far as we know there is no other published report of such profound liver disturbances being so closely correlated to the activity of the psoriatic disease. Clinically, a connection between the two conditions is evident. The mechanism behind the intrahepatic cholestasis is, however, not clear.

Braverman has demonstrated an abnormal microcirculation in psoriatic skin and suggests the possibility of similar vascular disturbances in internal organs, compromising their normal function (10).

Various types of mucosal involvement—conjunctivitis, oral lesions, bronchial, gastric and jejunal involvement—are seen in psoriasis (9, 11). Changes in the mucosa of the biliary tract may also occur. In psoriatic enteropathy there is an immaturity of the enterocytes due to enhanced epithelial cell turnover (12). Whether discrete damage to the biliary epithelium leads to increased cell turnover and a transient cholestasis remains to be elucidated.

In conclusion, there are many indications of varying degrees of liver damage in severe psoriasis, but very seldom is it as evident as in our case. The continued observation of the patient will reveal whether the ductular proliferation and fibrosis in the last liver biopsy is a reversible phenomenon or an early sign of chronic liver damage, that will tend to be more severe with each bout of pustular psoriasis.

REFERENCES

1. Zachariae H, Sogaard H. Liver biopsy in psoriasis. A controlled study. Dermatologica 1973; 146: 149–155.
2. Nyfors A, Poulsen H. Liver biopsies from psoriatics related to methotrexate therapy. Acta Pathol Microbiol Scand Sect A 1976; 84: 253–261.

3. Shelley WB. Generalized pustular psoriasis induced by potassium iodide. A postulated role for dihydrofolic reductase. JAMA 1967; 201: 1009–1014.
4. Warren DJ, Winney RJ, Beveridge GW. Oligaemia, renal failure and jaundice associated with acute pustular psoriasis. Br Med J 1974; ii: 406–408.
5. Baker H, Ryan TJ. Generalized pustular psoriasis. A clinical and epidemiological study of 104 cases. Br J Dermatol 1968; 80: 771–793.
6. Ryan TJ, Baker H. Systemic corticosteroids and folic acid antagonists in the treatment of generalized pustular psoriasis. Br J Dermatol 1969; 81: 134–145.
7. Ryan TJ, Baker H. The prognosis of generalized pustular psoriasis. Br J Dermatol 1971; 85: 407–411.
8. Lindgren S, Groth O. Generalized pustular psoriasis—a report on thirteen patients. Acta Derm Venereol (Stockh) 1976; 56: 139–147.
9. Gordon M, Pearlstein HH, Burgoon Jr CF. Pustular psoriasis (Zumbusch). Dermatologica 1969; 138: 65–74.
10. Braverman IM, Cohen I, O'Keefe E. Metabolic and ultrastructural studies in a patient with pustular psoriasis (von Zumbusch). Arch Dermatol 1972; 105: 189–196.
11. Shuster S, Watson AJ, Marks J. Small intestine in psoriasis. Br Med J 1967; iii: 458–468.
12. Hendel L, Larsen JK, Ammitzbøll T, Asboe-Hansen G. Epithelial cell turnover in the small intestine of psoriatics. In: Farber EM, Cox AJ, eds. Psoriasis. Proceedings of the Third International Symposium. New York and London: Grune & Stratton, 1982: 331–332.

Angiosarcoma: A Complication of Varicose Leg Ulceration

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Al-Najjar A A-W, Harrington C I, Slater D N. Angiosarcoma: A complication of varicose leg ulceration. Acta Derm Venereol (Stockh) 1986; 66: 167–170.

Most reports of skin malignancy associated with varicose ulceration have described carcinomatous change (1). The development of fibrosarcoma in varicose ulcers is considerably rare but has also been described (2). We report a case of angiosarcoma developing at the site of longstanding varicose ulceration. *Key words: Malignant changes; Varicose leg ulcer.* (Received October 8, 1985.)

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CASE REPORT

A 76-year-old man presented in July 1983, with a three-month history of a 4×4 cm painful haemorrhagic ulcer on the mid-anterior aspect of the left leg (Fig. 1). He had suffered from varicose veins with recurrent gravitational ulcers at that site for 15 years. He had bilateral hip replacements in 1972. All investigations were normal except for a high ESR (59 mm/hour Westergren). However, the ulcer rapidly increased in size, and failing to heal with conventional treatment, was biopsied. Light microscopy showed a solid network of anastomosing vascular channels lined by atypical endothelial cells displaying collagen dissection (Fig. 2). A spindle cell component was absent. Electron microscopy displayed tumour endothelial cells resting on a rudimentary basal lamina with intracytoplasmic rod-shaped tubulated Weibel-Pelade bodies in approximately 5% of the tumor cells (Fig. 3). The appearance was considered to represent angiosarcoma. Immunoperoxidase studies (DAKO Laboratory antisera) showed weak patchy positivity in the tumor cells for factor VIII related antigen *Ulex europaeus* I lectin and laminin. This was in contrast to normal stromal blood vessels which displayed strong positivity for these antigens. The lesion was treated with local electric beam therapy and nearly complete healing of the ulcer was achieved. In February 1984, recurrences developed at the edge of