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KAPOSI'S SARCOMA OCCURRING IN A COLOURED MALE

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This case of Kaposi's sarcoma is reported because of certain unusual and unique features. It is of interest because (1) it constitutes the first recorded case of Kaposi's sarcoma in a Cape Coloured subject, (2) there is evidence of visceral spread, and (3) autopsy findings are available—to our knowledge the second reported autopsy of this condition in South Africa. The patient's response to penicillin therapy and the unusually short course of the disease are also features of interest.

CASE HISTORY

K.R., a Coloured male farm labourer aged 40, first noticed multiple recurrent sores on the legs, thighs and buttocks in April 1956. These lesions discharged a bloody purulent fluid and healed without scars. In May 1956 swellings commenced in both groins and concurrently a low backache was experienced. In a country hospital, where the case was diagnosed as lymphogranuloma inguinale, he received antibiotic therapy without any change in the enlarged groin glands. Two months later he was admitted to Groote Schuur Hospital, his presenting symptoms still being swellings in the groin glands and low backache. He was in good condition on examination and showed enlarged lymph nodes in the groins, axillae, and epitrochlear and cervical regions, the largest being in the groins. These were tender, discrete, mobile, rubbery-firm in consistency, and not attached to the skin or deeper structures. The liver and spleen were both enlarged. No skin lesions were noted and the only other positive finding was a small rectal polyp.

Special Investigations: Haemoglobin 11 g.%; total white-cell count 4,700 per c.mm.; sedimentation rate 74 mm. in 1st hour (Westegren); blood Wassermann positive; the bone marrow showed no significant change; and X-rays of the chest and spine were normal.

Biopsies were performed on the groin and neck glands and on the rectal polyp. The diagnosis of Kaposi's sarcoma was made on the histological appearances of the glands; and the rectal nodule showed the features of a benign adenomatous polyp. In view of the positive serological tests for syphilis, the patient was given $\frac{1}{2}$ million units of penicillin b.d. for 2 weeks; no change in the size of the glands was noted. On 30 July one small raised plaque was noticed on the lower medial aspect of the right leg. On 9 August and on 3 consecutive days 5 mg. of nitrogen mustard was given intravenously without any significant change being noted in the size of the lymph nodes. On 16 August large purple patches appeared on the right thigh, small purple grape-like masses appeared on the gums, and the groin biopsy scar became dusky purple in colour. During the last 2 weeks of August many ecchymotic patches developed on the chest, lower abdomen and legs, the glands increased in size, the swellings on the gums increased in size up to 1 cm., and flat purple patches appeared on the conjunctival surface of the eyelids. During this period the patient's general condition deteriorated rapidly. It was found that he had lost 20 lb. in weight since admission in mid-July, his haemoglobin had fallen to 8 g.% and his leucocyte count to 2,600 per c.mm. He became dyspnoeic and was confined to bed because of the associated backache and cramping abdominal pain. No abdominal masses could be felt and no definite cause of his abdominal pain was found, though it was thought he was developing multiple visceral lesions. Radiographs of his chest showed bilateral pleural effusions, more marked on the left than the right. No abnormality was seen in radiographs of the spine.

On 31 August he was started on 4 million units of penicillin daily, which was continued for 21 days. During the first week the disease progressed and oedema of the lower abdominal wall and scrotum and thighs became marked. During the second week of the penicillin treatment the patient began to improve. His pain was much less and it was possible to discontinue his analgesics, and during the third week his breathing improved and radiographs showed progressive diminution of the pleural effusions. The oedema and ecchymotic patches subsided, the nodules on his gums decreased in size, and the patches in the conjunctivae disappeared. The patient's appetite and energy improved and his haemoglobin level was maintained at 10 g.%. In contrast to this, a further biopsy of one of the small neck

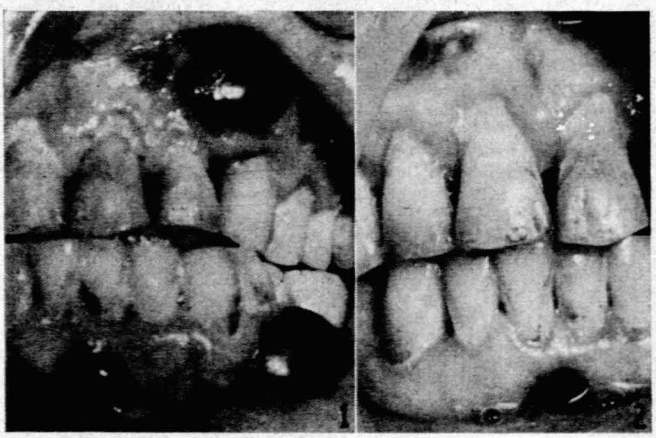
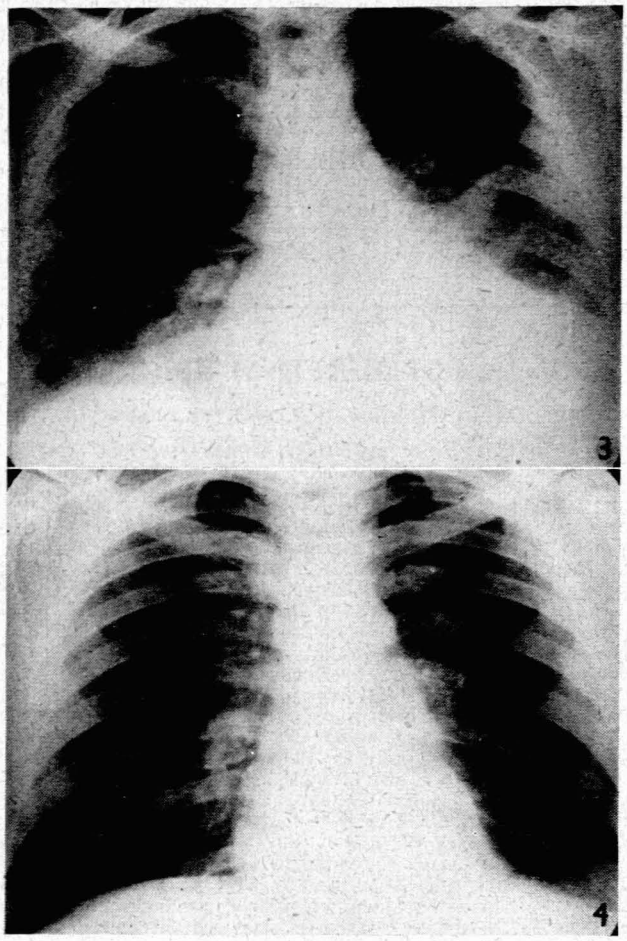


Fig. 1. Berry-like, haemorrhagic tumour deposits as they appeared on 27 August 1956, before the institution of massive penicillin therapy.
Fig. 2. The appearances of the gums on 3 October 1956, after the patient had received penicillin. At this stage the nodules had retrogressed in size considerably and were barely visible.



Figs. 3 *and* 4. X-rays of the chest before and after penicillin therapy, illustrating the disappearance of pleural effusions that occurred.

nodes which macroscopically appeared normal still showed the histological features of Kaposi's sarcoma.

He was discharged on 1 October 1956 on twice-weekly maintenance doses of penicillin, but was readmitted on 15 November 1956, having returned from his home in the country, where he had been unable to obtain the maintenance doses of penicillin. He had remained well for about 3 weeks after his discharge from hospital and then the low backache had returned and become more severe, and there had also been some loss of appetite and loss of weight.

He was found to have generalized lymphadenopathy, an enlarged liver and spleen, and slight oedema of the ankles. The gum nodules were barely visible and no skin nodules were present. The haemoglobin was 8·5 g.% and the white-cell count 7,600 per c.mm. In view of the evident recrudescence, the penicillin treatment was started again at 2 million units daily and later increased to 4 million units daily, and 2 pints of blood were given on 19 November, both without effect.

During the next 2 weeks gross oedema of the whole abdominal wall, thighs and scrotum and penis became a marked feature. It was no longer possible to assess enlargement of the spleen and liver or to identify other abdominal masses owing to the oedema of the abdominal wall. Radiographs of the chest showed increasing bilateral pleural effusions, but radiographs of the spine showed no evidence of deposits. His condition steadily deteriorated and he died on 9 January 1957.

Post-mortem Findings

The autopsy was performed approximately 48 hours after death. The body was markedly emaciated. Pronounced pitting oedema of the legs, which extended from the feet to the sacrum, and involved the penis and scrotum as well, was present. All the serosal cavities contained serous effusions. The skin and the mucous membranes of the gums and conjunctiva contained multiple raised purple nodules, which varied in size from a few mm. in the eye to 2-3 cm. elsewhere; the skin nodules were most numerous over the thighs, especially the medial aspects.

The majority of the superficial lymph nodes, the tonsils, the lymphoid tissue at the base of the tongue, the paratracheal, tracheobronchial and bronchopulmonary lymph nodes, and the mesenteric, portal and retroperitoneal lymph nodes, were either totally or partly replaced by deeply haemorrhagic tissue of a firm fibrous consistency. The retroperitoneal, para-aortic and lumbar glands were most extensively involved, presenting as continuous sheets of haemorrhagic tissue. Similar focal aggregates occurred in the spleen and the lumbar vertebral and the femoral bone marrow. From the retroperitoneal lymph nodes tissue appeared to extend into the right adrenal and the peripelvic tissues of the left kidney.

The liver was enlarged and contained focal deposits of subcapsular and periportal haemorrhagic tissue, and occasional deposits of pale tissue resembling secondary deposits of tumour growth.

The mucosa of the entire gastro-intestinal tract showed varying degrees of involvement by similar haemorrhagic tissue, which

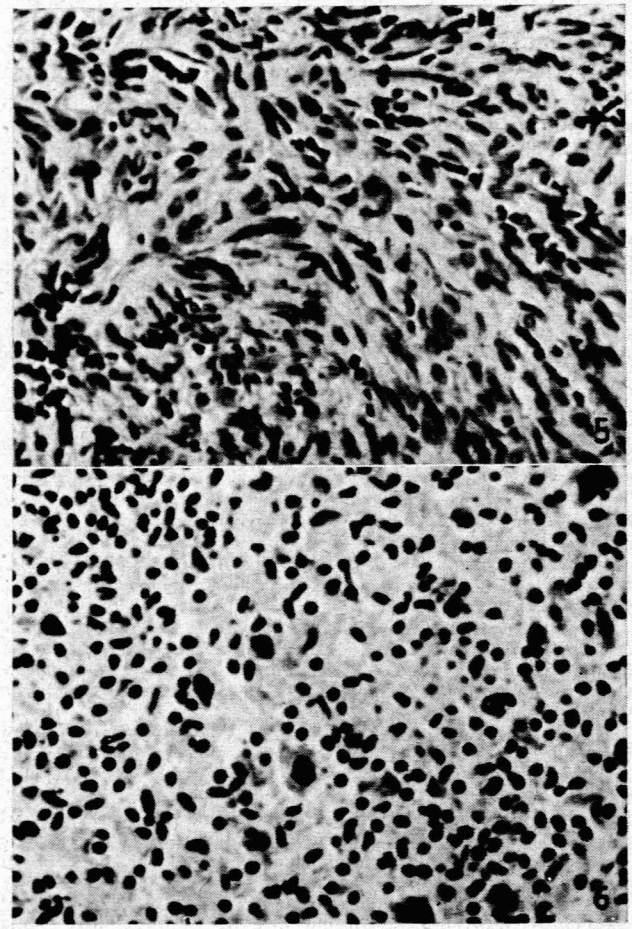


Fig. 5. The typical histological appearances seen in the majority of tumour deposits. Spindle-shaped cells arranged in a haphazard fashion predominate and, between these, lying free and occurring in capillary-type vessels, are numerous red cells. (H. & E. × 250.)

Fig. 6. The histological appearances of the deposits in the liver. The spindle-shaped cellular elements have been replaced by lymphocytic cells, reticulum cells and giant cells of the Hodgkin's type. This picture is distinctly similar to that seen in Hodgkin's disease. (H. & E. × 250.)

appeared to project from the submucosa and in only a few instances showed mucosal ulceration. In the oesophagus the nodules were discrete but in the stomach they occurred as multiple polypoidal masses, ulcerated in places, replacing the entire mucosa and seriously reducing the size of the lumen. From here there was a progressive reduction of the deposits, both in size and frequency, as one proceeded distally, with only isolated single massing occurring in ileum and colon.

Multiple nodules were noted in the diaphragm and two almost microscopic nodules in the posterior wall of the right auricle.

The brain, pancreas, the remainder of the myocardium, and both lungs, contained neither macroscopic nor microscopic tumour.

A varying histological picture was present. The pattern seen in the glands, skin and mucosal nodules was the typical tumour-like deposits of spindle cells with elongated deeply-staining nuclei and scanty eosinophilic cytoplasm. They tended to be arranged in whorls and fasciculi and merged imperceptibly with the surrounding tissues. On the whole, intercellular connective tissue was unimpressive, but in some glands there was some collagen and moderate amounts of reticulin. Even microscopically the tissue was strikingly haemorrhagic because of red cells lying free between the tumour cells and in numerous newly-formed capillary and sinusoidal blood vessels. In addition to the capillaries in the tumour nodules, there were dilated vascular spaces of sinusoidal character, particularly on the periphery. Past haemorrhage was indicated by focal deposits of haemosiderin.

In some of the glands the neoplastic tissue showed all gradations from angio-sarcomatous to a typical granulomatous response in which the cells were epithelioid in character and intercellular collagen was abundant. While a feature of most of the deposits was uniformity of cell type, the liver contained foci that histologically were indistinguishable from Hodgkin's disease and showed a pronounced degree of cellular pleomorphism.

DISCUSSION

The occurrence of Kaposi's sarcoma has been described in most races, but there are some in whom it appears to occur more frequently, though most data suggesting racial variation apply more properly to geographical distribution. It is common in Russia, Poland, Northern Italy and the countries bordering the Mediterranean and Caspian seas.[1] It has been stated that the majority of cases have been in Jews and Italians, and that it is rare amongst Anglo-Saxons[2] and Negroes.[1] Kaminer and Murray,[3] however, have stated that while it is a rare condition in the South African Bantu, it is not as uncommon as one would imagine from reading the literature; in fact they get the impression that it is more frequently encountered in the Bantu than in the European in South Africa. To date, in South Africa there has been only one case report of an autopsy and that in a Bantu subject.[4] Elsewhere on the African Continent it has been reported in the Natives of Nigeria,[5, 6] in an African from Uganda,[7] in the Wa-Kikuyu,[8] and in East Africa.[9]

To our knowledge this is the first case, confirmed by biopsy and post mortem, that has been described in a Coloured subject. In our routine histology records few cases have been diagnosed as Kaposi's sarcoma and these are more or less equally distributed between Europeans and Coloured. The comparative incidence is difficult to evaluate, for Coloured preponderate in our records and Bantu subjects are in the minority, but this finding may indicate that the disease occurs at least as frequently in the Coloured as in the European. However, it is doubtful whether this has any real significance, because the Cape Coloured do not constitute a true ethnic racial group but are a heterogenous mixture of Khoisan, Bantu, Malay and European races in ever-varying proportions.

In most of the cases of Kaposi's disease reported it is stressed that the disease is usually confined to the skin and mucous membranes and that visceral involvement is a rare occurrence. Visceral involvement is estimated by Tedeschi[10] to occur in only 10% of cases, by Choisser and Ramsay[11] in 14%, and by Duchen *et al.*[4] in South Africa in 10%. In our case, apart from the lesions in the skin and mucous membrane, the reticulo-endothelial system in such sites as lymph nodes, spleen, bone marrow, gut and liver bore the brunt of the involvement, and extra-reticular tissues were invaded only because of their anatomical proximity to obvious deposits of tumour growth, as in the kidney pelvis and the adrenal. This pattern of involvement closely resembles that seen in the Bantu case of Duchen *et al.*,[4] and for that matter the autopsied cases described in the rest of the literature.

Histologically, the bulk of the deposits in this case conform to other descriptions. In most of the deposits the predominating cell is elongated and spindle-shaped and produces varying amounts of reticulin and collagen. Cellular pleomorphism and signs of rapidity of growth are striking by their absence. The characteristic cells occur haphazard or in fasciculi and are closely related to an abundance of blood-filled capillary-type and sinusoidal blood vessels. Evidence of recent and old haemorrhage is present at most sites. The lymphomatous and granulomatous foci, although not undescribed hitherto, can be regarded as a pointer towards the histogenesis of these tumours. The range of histological appearances seen at different sites suggests a transformation of reticulum and endothelial cells to fibroblastic and epithelioid cells and an origin for the tumour in reticulo-endothelium.

The rapidity of this patient's decline is an unusual feature; the disease ran its entire course over a period of 9 months. Generally in fatal cases the course is over a period of 8-10 years, some patients living as long as 25-45 years, but a few have been recorded that have lived for only a period of months.[2] In this respect the progress of our case resembles that of a highly anaplastic tumour. However, as it has been stressed that anaplasia was virtually absent, we must attribute the patient's early demise rather to widespread involvement, possibly the result of multicentric origin.

A feature worthy of comment, but of doubtful significance, is the apparent response of this patient to massive penicillin therapy. On Garretts' suggestion[12, 13] that a trial of penicillin in massive doses was of value, this patient received a 3-week course and showed great improvement in the general condition, with radiological evidence of disappearance of pleural fluid and marked shrinkage of the visible lesions such as the gum nodules. Previous experience of these cases in this institution has suggested that the very slight improvement was due to lessening of the secondary infection of multiple fungating lesions.

Though the spontaneous remissions that are a feature of Kaposi's disease make it difficult to evaluate any therapy, the absence of sepsis in this case and the pronounced and maintained response to penicillin, suggests that the ameliorating effect was directly due to therapy. It would thus appear that penicillin therapy, while of equivocal value, at this stage at least justifies a trial.

SUMMARY

The clinical and autopsy findings of a case of Kaposi's sarcoma with visceral spread are recorded in a Cape Coloured subject; this constitutes the first recorded instance of the disease in this racial type.

Added and unusual features of this case are: (*a*) a rapid and fulminating course occurring over approximately 9 months and (*b*) short but dramatic improvement to penicillin therapy.

We wish to record our thanks to the Superintendent, Groote Schuur Hospital, for permission to publish this case; to Prof. J. G. Thomson for his advice and criticism and to Messrs. B. Todt and G. McManus for the photography.

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