Ribosome lamella complex in neoplastic cells of a Sézary's syndrome

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SUMMARY The first case of ribosome lamella complex (RLC) is reported in abnormal cells of a Sézary's syndrome, a T cell malignancy. Until now this ultrastructural cytoplasmic inclusion has usually been described in hairy cell leukaemia and other lymphoproliferative syndromes of B cell origin. Since RLC are also observed in abnormal lymphoid T cells, in non lymphoid cells, and moreover in non haematopoietic cells, they lack diagnostic specificity.

Ribosome lamella complexes (RLC) are ultrastructural cytoplasmic structures described mainly in hairy cell leukaemia (Katayama *et al.*, 1972; Daniel and Flandrin, 1974), more rarely in other haematopoietic disorders: chronic lymphocytic leukaemia (Zucker Franklin, 1963; Brunning and Parkin, 1975; Cawley *et al.*, 1975; Woessner and Rozman, 1976), lymphosarcoma cell leukaemia (Anday *et al.*, 1973; Djaldetti *et al.*, 1974; Katayama and Schneider, 1977), Waldenström's macroglobulinaemia (Brunning and Parkin, 1975), malignant lymphoma (Reynes and Diebold, 1977), and

acute monocytic leukaemia (Brunning and Parkin, 1975). Except for acute monocytic leukaemia, these are all lymphoproliferative syndromes of B cell origin (Siegal *et al.*, 1978). Until now they have never been observed in Sézary cells, known to be lymphoid T cells (Brouet *et al.*, 1973).

This paper reports a case of Sézary's syndrome in which some proliferating cells were found to contain RLC.

Material and method

Electron microscopy was performed on blood cells from a 66-year-old man with generalised infiltrative

Fig. 1 Electron micrograph of a typical Sézary's cell conspicuous by its strong nuclear lobulation.

Fig. 2 Electron micrograph of a Sézary's cell illustrating a fully developed ribosome lamella complex (arrow).

Fig. 3 *High magnification of Fig. 2 showing the ribosome lamella complex in cross-section.*

Fig. 4 *Electron micrograph of a Sézary's cell showing a ribosome lamella complex in longitudinal section.*

erythrodermia, hyperpigmented skin, cervico-axillar lymphadenopathy, and hepatosplenomegaly. His white cell count was $18 \times 10^9/l$ with 30% of Sézary cells (18% small cells and 12% large cells). The buffy coat was obtained from 10 ml heparinised blood and fixed in cold 1.25% phosphate-buffered glutaraldehyde, pH 7.3. Fixation was carried out for 30 minutes at room temperature. After washing in the buffer, postfixation in 1% osmic acid in the same buffer was performed at 4°C for 1 hour. After dehydration, the specimen was embedded in epoxy resin. Ultrathin sections were cut by means of ultramicrotome C Reichert Om U₃. The sections, stained with uranyl acetate and lead citrate, were examined with a EM 201 Philips electron microscope.

Results

Sézary cells were easily recognised with their typical cerebriform nucleus (Fig. 1).

In a few Sézary cells (less than 1%), the cytoplasm contained one RLC (Fig. 2). This was a peculiar tubular cytoplasmic inclusion showing a lamella component separated by regular interlamellar spaces. These spaces were filled by a single row of ribosome-like round granules. The profiles of these complexes differed greatly from one section to another, and they were observed as concentric circles (Fig. 3) or parallel lines (Fig. 4) corresponding respectively to the cross or longitudinal sections of a cylindric system.

Discussion

RLC have been noted by several investigators in the pathological cells of at least 50% of the cases of hairy cell leukaemia (Katayama *et al.*, 1972; Daniel and Flandrin, 1974), with a variable number of leukaemic cells containing one or several such inclusions (Daniel and Flandrin, 1974). Furthermore, these inclusions have been regarded as an ultrastructural marker of this disease (Katayama *et al.*, 1972; Daniel and Flandrin, 1974). However, although infrequently, such inclusions were reported in the lymphocytes from six patients with chronic lymphocytic leukaemia (Zucker-Franklin, 1963; Brunning and Parkin, 1975; Cawley *et al.*, 1975; Woessner and Rozman, 1976; Katayama and Schneider, 1977), three patients with lymphosarcoma cell leukaemia (Anday *et al.*, 1973; Djaldetti *et al.*, 1974; Katayama and Schneider 1977), one patient with Waldenström's macroglobulinaemia (Brunning and Parkin, 1975), and one patient with follicular malignant lymphoma (Reynes and Diebold, 1977), all diseases known to be of B cell nature (Siegal *et al.*, 1978). They were also described in non lympho-

proliferative disorders, such as two cases of acute monocytic leukaemia (Brunning and Parkin, 1975) as well as non haematopoietic diseases, such as an adrenal cortical adenoma from a patient with Cushing's syndrome (Hoshino, 1969) and in cells from other mammals and plants (Bartels and Weier, 1967; Bulger, 1968).

The RLC probably originate from the rough endoplasmic reticulum (Hoshino, 1969; Brunning and Parkin, 1975) but their significance in protein synthesis is unknown.

This description of RLC in abnormal cells of Sézary's syndrome, a T-lymphocyte neoplasm, and its occasional presence in non haematopoietic cells indicates that RLC lacks diagnostic specificity.

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