

ABSTRACT

Ultrastructural aspects in tumoral pathology. *García, J. (Instituto Anatómico-Patológico Universidad Central de Venezuela. Apartado 50647. Caracas, Venezuela). Invest Clín 23(3): 123-215, 1982.*— An evaluation of 316 benign and malignant tumors was made using light and electron microscopy. The purpose of this study was to update the knowledge of the ultrastructural aspects of tumoral pathology. Tissue sections were stained with hematoxylin-eosin for light microscopy and depending on the case, other special staining such as PAS, trichromic or argentic impregnation for reticulin were made. One hundred and three cases were soft tissue tumors, 53 corresponded to round cell tumors, 40 were endocrine and 122 were epithelial tumors. The importance of electron-microscopy in the diagnosis of tumoral pathology is emphasized.



Fig. 1.— ME-862. Tumor retroperitoneal en un paciente de 36 años con diagnóstico histológico de sarcoma fusocelular compatible con fibrosarcoma.

La microfotografía electrónica muestra el citoplasma de varias células tumorales formando cuerpos densos (cd) señalados por las flechas pequeñas, glucógeno (glc) y algunas mitocondrias (m). Las células están limitadas por una membrana basal (mb) y en el intersticio se ven manojos de fibras colágenas (clg). x 13.920. Diagnóstico: Leiomiosarcoma

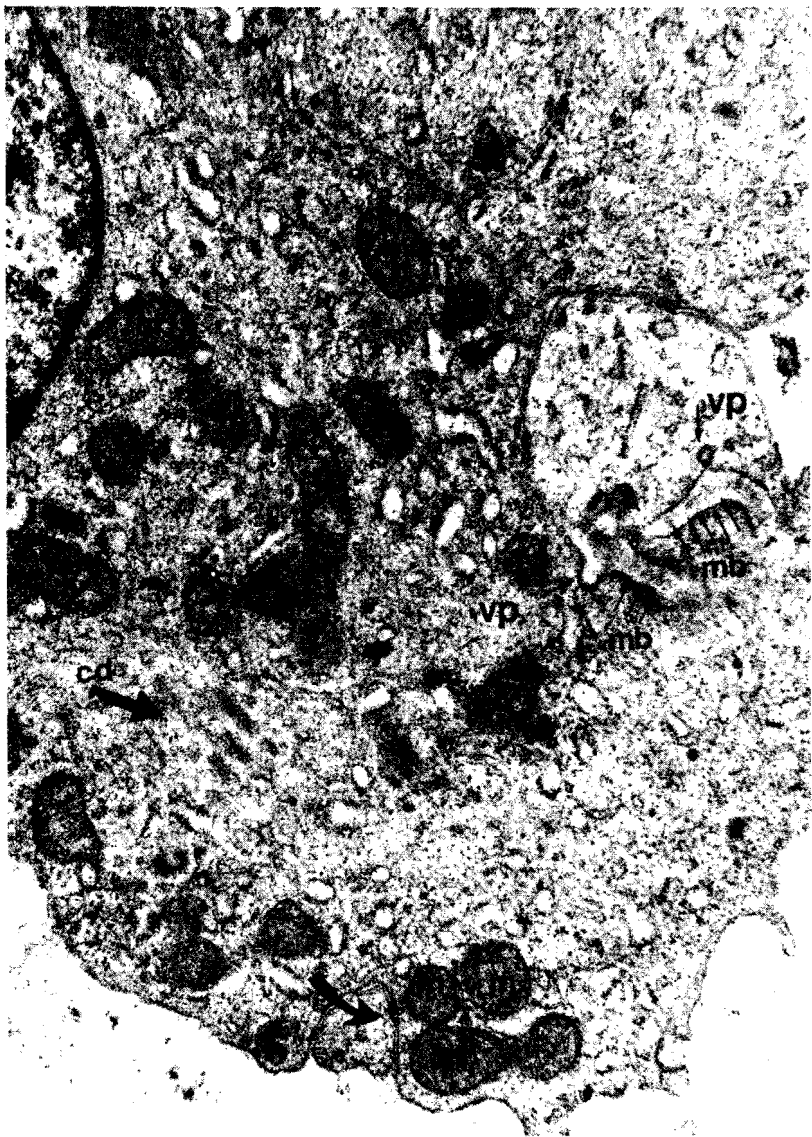


Fig. 2.— ME-297. Tumor de la transcauidad de los epiplones que se extendía a fosa ilíaca. Histológicamente fusocelular con aspecto compatible con Schwannoma vs leiomioblastoma.

Detalle de una célula tumoral con digitaciones, abundantes mitocondrias (m) y finos filamentos, citoplasmáticos que se agrupan formando cuerpos densos (cd). Las células se ponen en contiguidad fusionándose por medio de uniones rudimentarias (flechas curvas). En algunos sitios se ve material con aspecto de membrana basal adherido a la membrana plasmática (mp) en la cual se identifican vesículas de pinocitosis (vp). x 17.400. Diagnóstico: Leiomioblastoma



Fig. 3.— ME-72. Tumor fusocelular pararectal en un hombre de 69 años. Diagnosticado como mesotelioma vs hemangiopericitoma vs tumor de músculo liso.

Se observan varias células, una de ellas tapizando la luz de un espacio vascular con el núcleo (n) ovalado, uniones del tipo zónula ocludens (flechas gruesas) y la membrana basal que se continúa entre otras células de apariencia similar (flechas). En la membrana plasmática se ven hemidesmosomas y vesículas de pinocitosis y en el citoplasma hay finos filamentos. x 17.400. Diagnóstico: Hemangiopericitoma

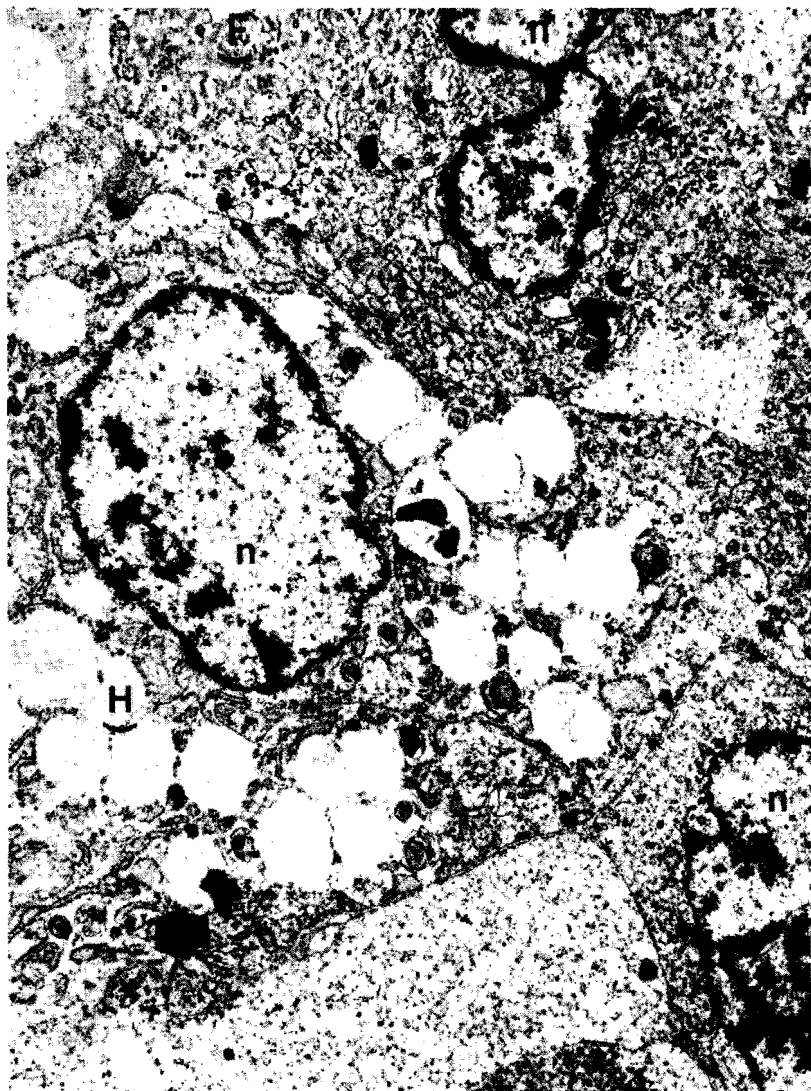


Fig. 4.— ME-A85. Tumor del muslo que parece originarse en el fémur con áreas fusocelulares y células pleomórficas diagnosticado como fibro histiocitoma maligno.

En la fotografía de microscopía electrónica se ven varias células sin uniones entre ellas, con el núcleo irregular y nucleólo evidente. Una de las células tiene abundantes cisternas de retículo endoplasmático rugoso en su citoplasma (f). Otra célula muestra el núcleo más redondeado y vacuolas en su citoplasma (h).

La ultraestructura demuestra el carácter bimodal, fibroblástico histiocítico de este tumor. x 8.700. Diagnóstico: Fibrohistiocitoma maligno.

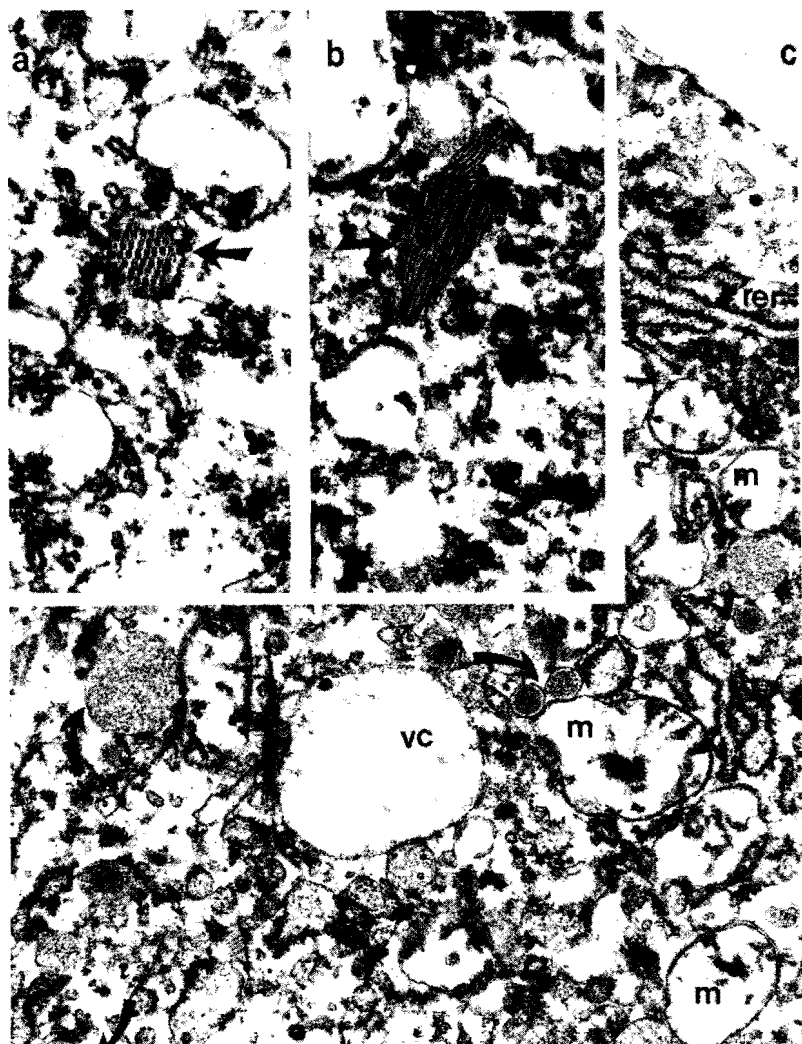


Fig. 5.— ME-894. Tumor de la pierna, muy anaplásico en una paciente de 40 años. Diagnóstico histológico: liposarcoma pleomórfico.

El examen con el microscopio electrónico demuestra células, con citoplasma que contiene vacuolas (vc) mitocondrias (m), cisternas de retículo endoplasmático rugoso (rer) y vesículas de tamaño variable que contiene material granular (flecha curva). En algunas células se vieron cisternas paralelas con organización para cristalina las cuales se muestran en las fotografías a. En corte transversal y b. longitudinal. x 29.000. Diagnóstico: Fibrohistiocitoma maligno.



Fig. 6.— ME-417. Lipoma del brazo en un joven de 21 años. Crecimiento rápido. Se hace el diagnóstico histológico de liposarcoma mixoide.

a. La ultraestructura demuestra células con citoplasma acintado que contienen material de mediana densidad electrónica con aspecto lipídico (lip) y que demuestra adherido a la membrana material electrón denso granular (flechas). En el citoplasma se ven mitocondrias (m) y vesículas de pinocitosis. Ocasionalmente se ven mitocondrias en el material lipídico (flechas gruesas). x 14.400.

b. Por fuera de la célula se ve material granular con aspecto de mucopolisacáridos (mps). x 4.460. Diagnóstico: Liposarcoma mixoide.

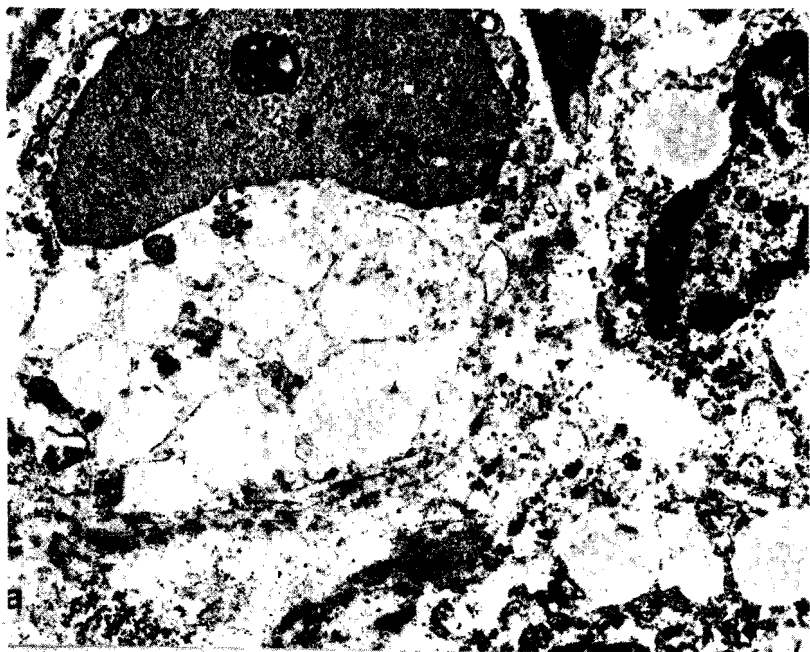


Fig. 7.— ME-A121. Tumor anaplásico del mediastino en un niño de 2 años de edad. Diagnóstico histológico: rabdomiosarcoma.

El estudio con el microscopio electrónico demostró numerosos lipoblastos con el aspecto característico que se evidencia en las fotografías a y b citoplasma vacuolizado, con grasa, núcleo rechazado hacia la periferia de la célula y nucléolo prominente. x 3.480. Diagnóstico: Liposarcoma pleomórfico.

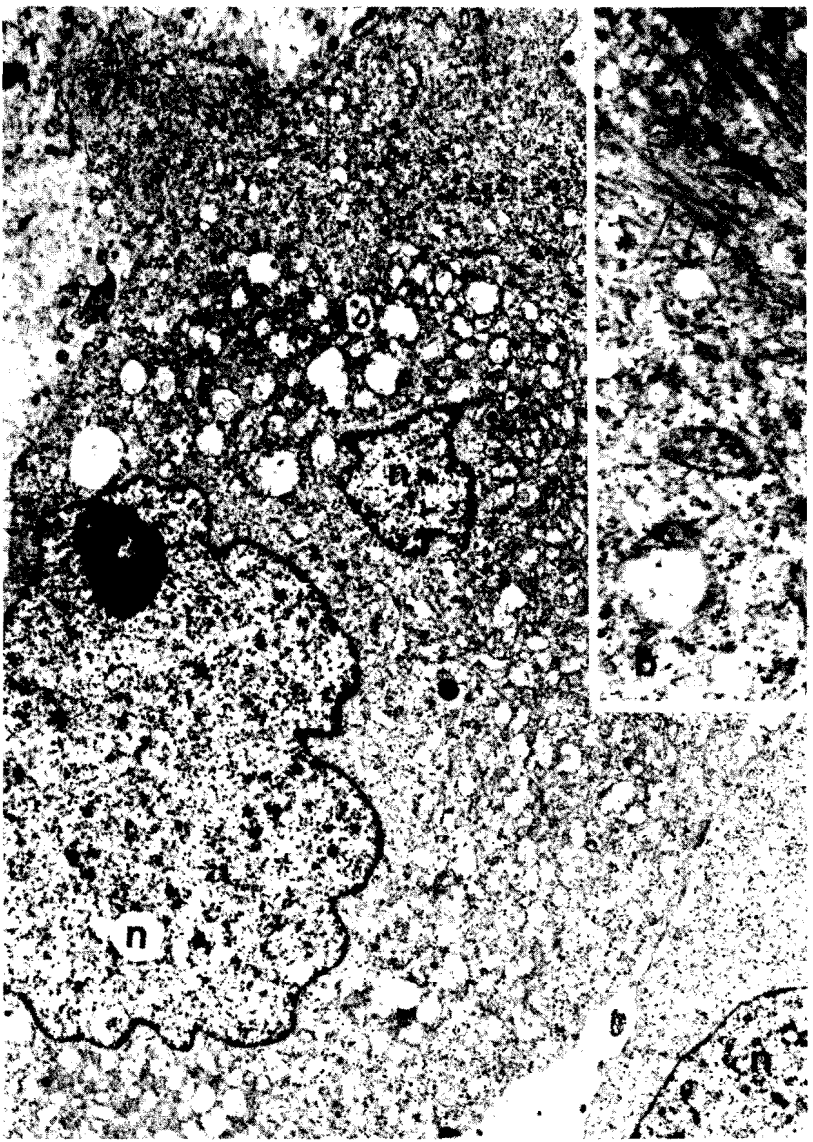


Fig. 8.— ME-545. Tumor de labio inferior en un niño de 9 años. Diagnóstico: Schwannoma vs rabdomiosarcoma.

a. Células muy grandes de citoplasma vacuolizado con abundantes mitocondrias y ribosomas libres. El núcleo (n) es irregular y se ve un nucléolo en su extremo superior. x 4.640.

b. Las flechas señalan manojos de filamentos que se disponen en algunas áreas formando una banda electrodensa (flechas gruesas) con aspecto de banda zeta. x 14.400. Diagnóstico: Rabdomiosarcoma embrionario.

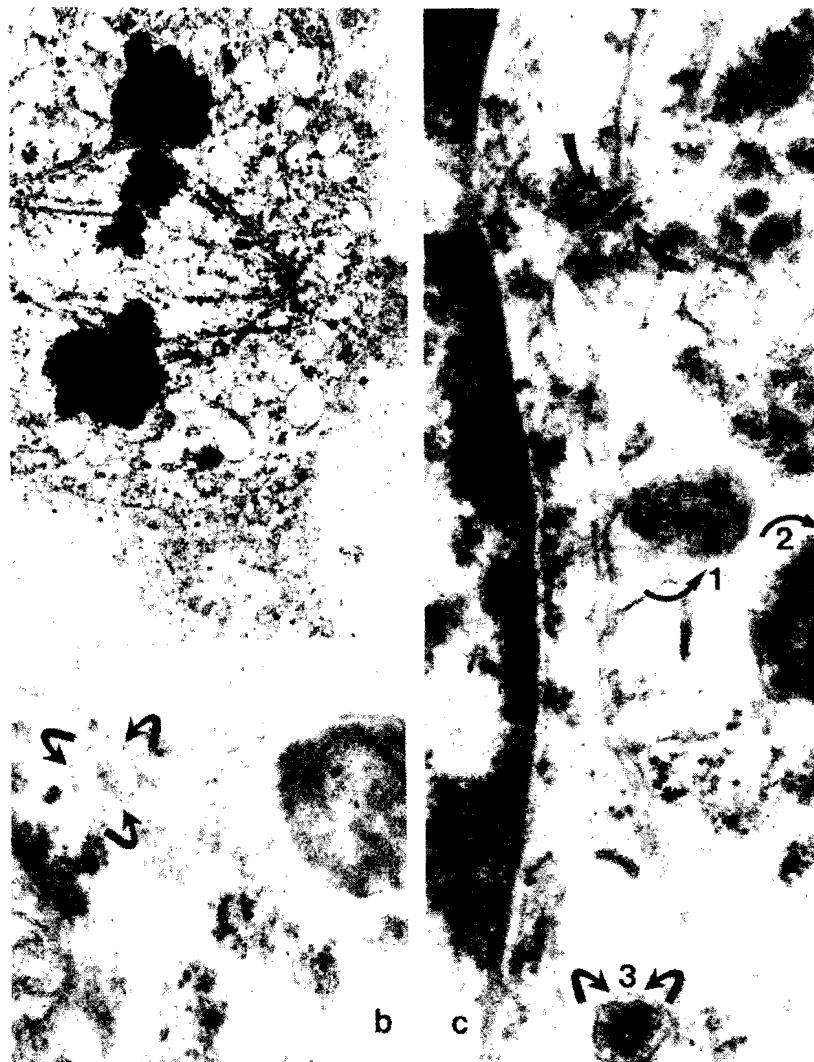


Fig. 9.— ME-62. Tumoración de muslo en un hombre de raza negra, metástasis en ganglios inguinales. Histológicamente se pensó en rhabdomyosarcoma alveolar vs melanoma.

a. Mitosis en metafase. x 4.540.

b. Las flechas curvas señalan un premelanosoma con la estructura estriada características en su interior. x 14.400.

c. Se observan dos células tumorales unidas por un desmosoma (flechas gruesas) y en el citoplasma estructuras limitadas por una membrana (1-2 y 3) que contienen material electrondenso con aspecto de melanina. x 14.400. Diagnóstico: Melanoma

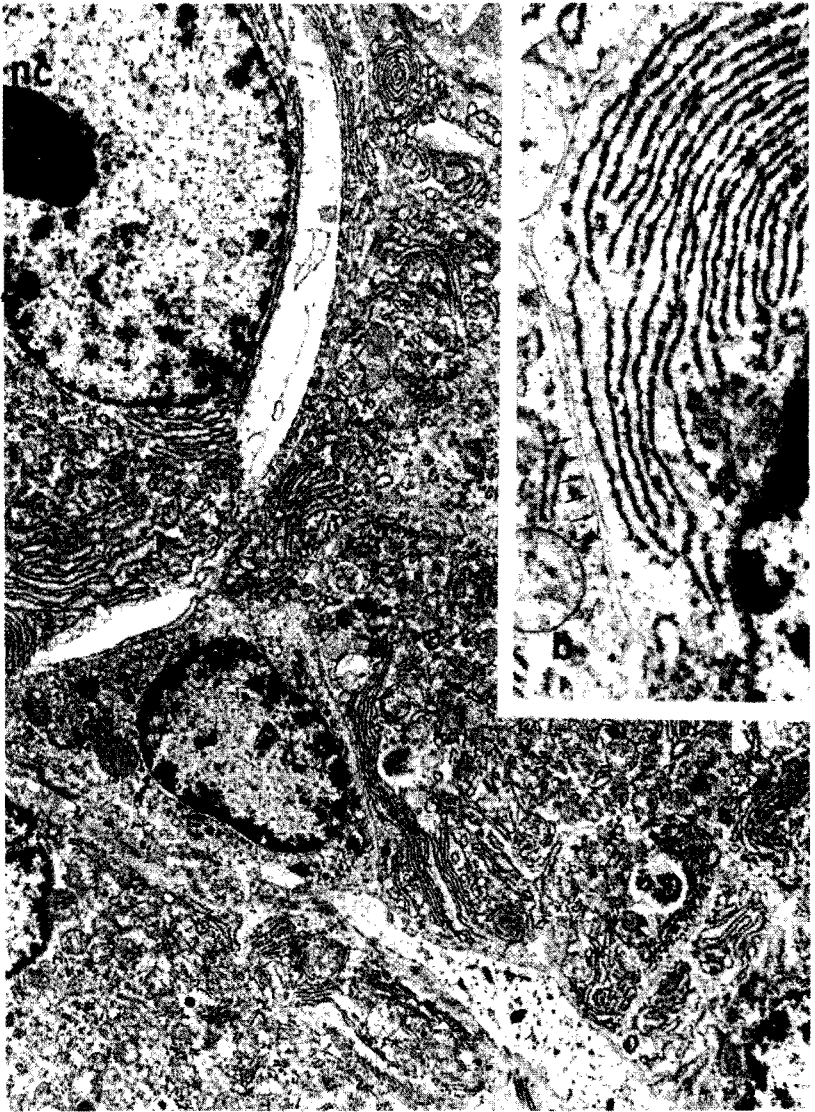


Fig. 10.— ME-303. Ganglio linfático reemplazado por células con grandes nucleolos con aspecto pleomórfico. Se hizo el diagnóstico de melanoma metastásico.

a. Células con numerosas cisternas de retículo endoplasmático rugoso que muestran la cromatina nuclear marginada y un nucleolo (nc) muy prominente. x 4.640.

b. Se observa con mayor detalle el núcleo (n) las cisternas de retículo endoplasmático rugoso y la ausencia de medios de unión intercelular (flechas). x 14.400. Diagnóstico: Plasmocitoma

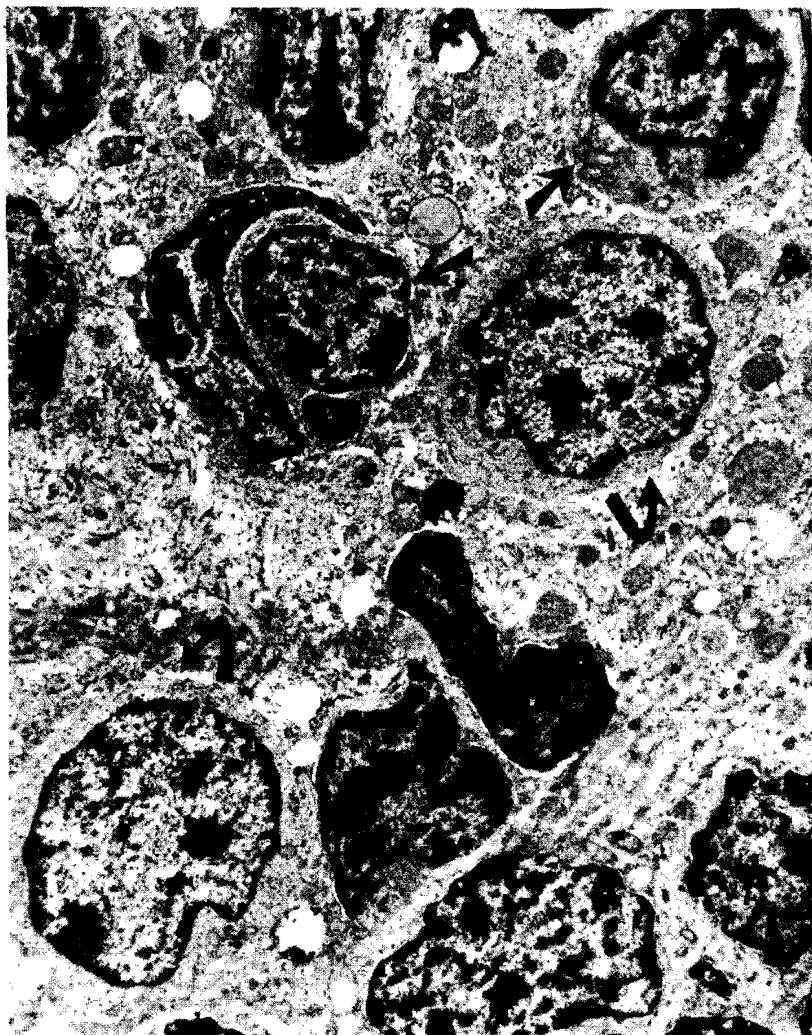


Fig. 11.— ME-6307. Nódulos supraclavicular diagnosticado como linfoma linfoblástico en un niño de 15 años con nódulos en el cuello.

La estructura demuestra dos poblaciones de células linfoides. Unas de núcleo redondo (flechas curvas) algunas con aspecto de linfocitos pequeños (flechas rectas). Las demás células con núcleo electrondenso más irregular y con uno o varios nucleolos. x 5.220. Diagnóstico: Linfoma linfoblástico.

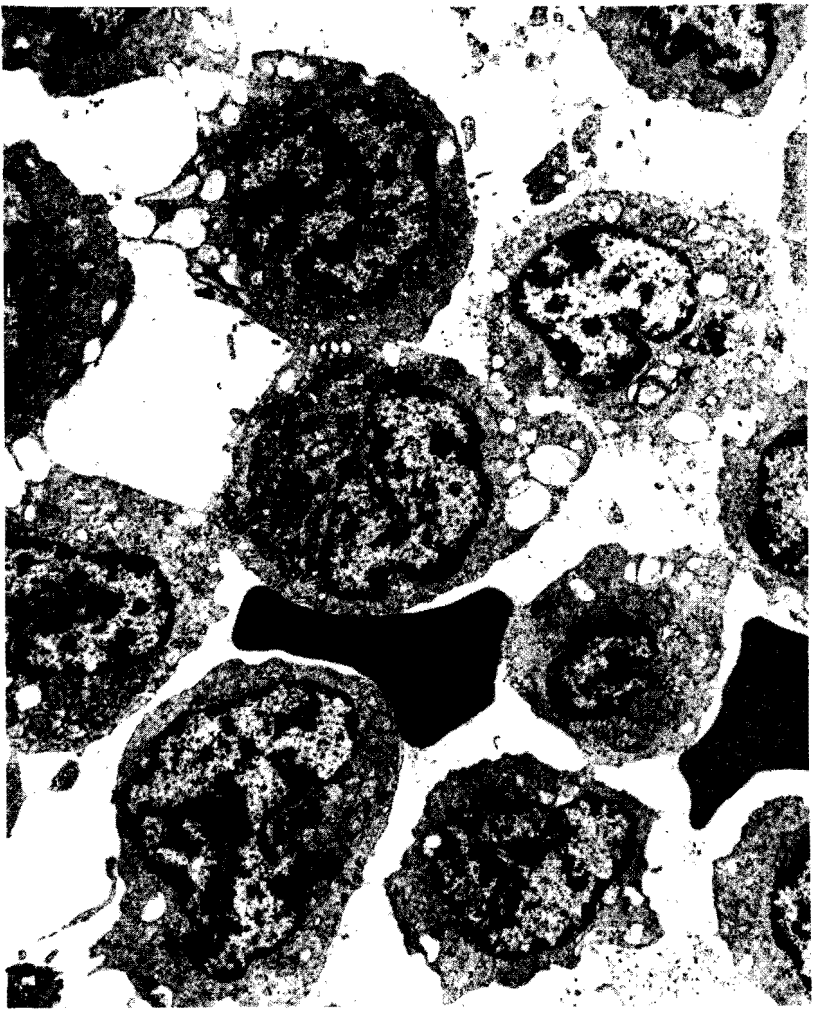


Fig. 12.— ME-A10528. Paciente con diagnóstico de linfoma y lesiones nodulares de piel.

Células con núcleo cerebriforme característicos de la micosis fungoides y del síndrome de sezary. x 4.640. Diagnóstico: Micosis fungoides.

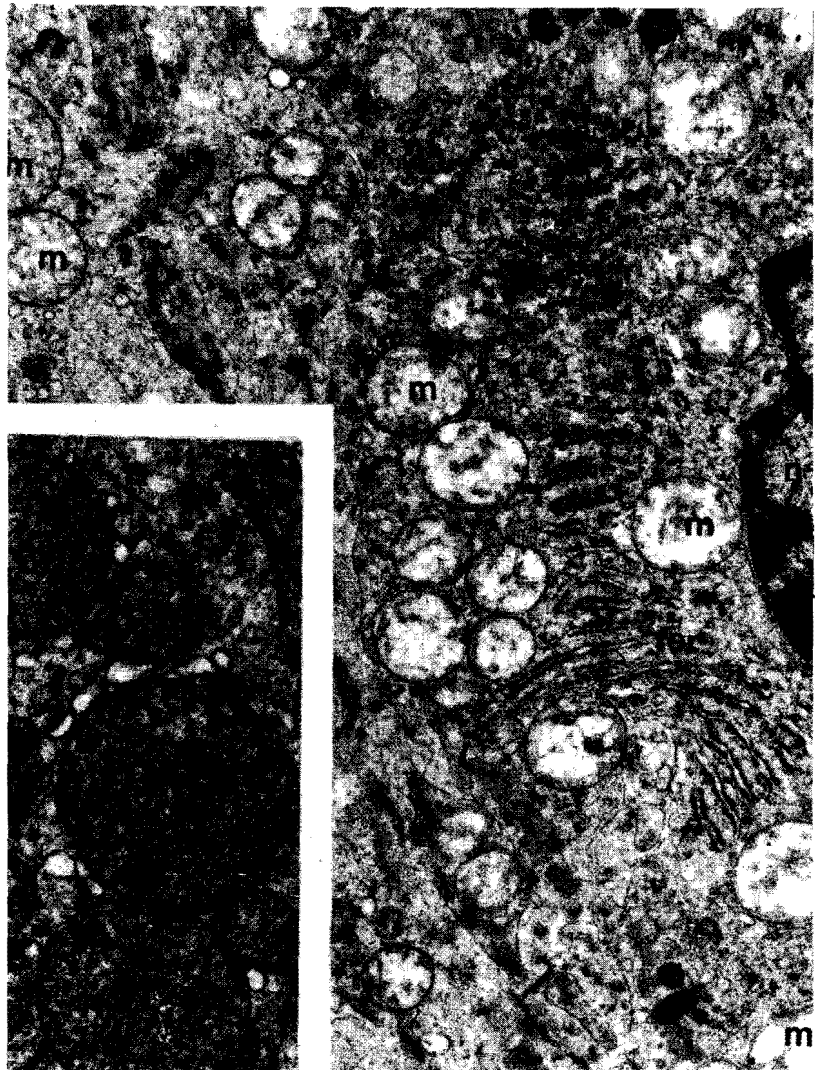


Fig. 13.— ME-23. Tumor retroperitoneal en un niño diagnosticado como paraganglioma. Posteriormente se recibió información clínica que señalaba la existencia de un síndrome de Cushing con cifras elevadas a 17 cetoesteroides que descendieron después de la extirpación del tumor.

a. Las células con núcleo (n) irregular y grandes nucleolos muestran abundantes mitocondrias (m) algunas como las señaladas por las flechas y en la fotografía b con crestas tubulares. El retículo endoplasmático liso está muy desarrollado pero se ven en ocasiones cisternas de retículo rugoso (rer). x 14.400.

b. Mitocondrias grandes con crestas tubulares. x 14.400. Diagnóstico: Carcinoma de la corteza suprarrenal.

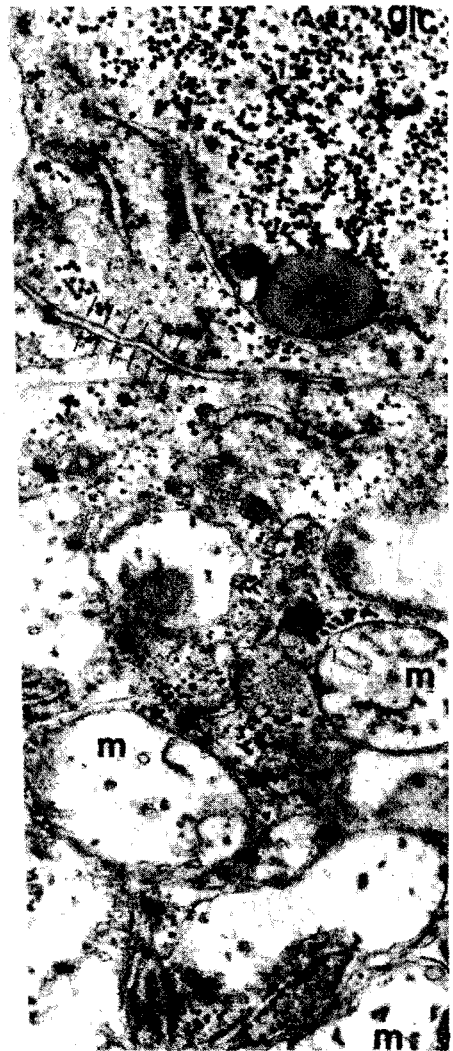
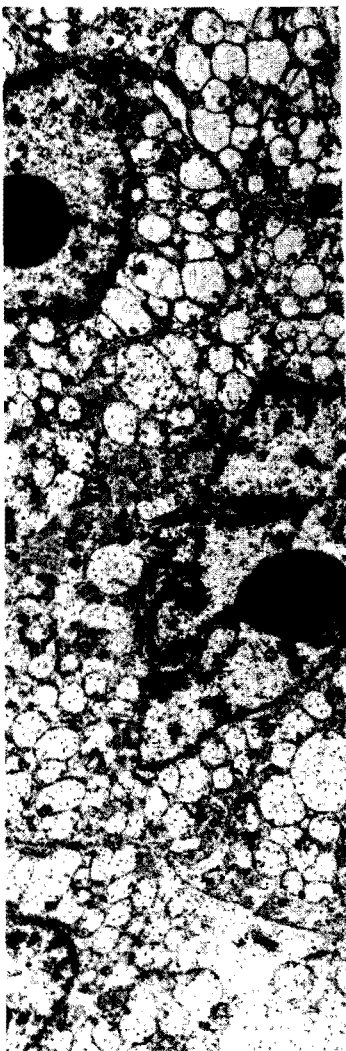


Fig. 14.— ME-98. Tumor retroperitoneal, separado del polo superior del riñón, encapsulado, en mujer de 38 años. Diagnóstico: Carcinoma de corteza suprarrenal. Un año después se han presentado metastasis óseas.

a. El estudio ultraestructural está caracterizado por células vacuolizadas con aspecto vacío o "claro" con núcleos que muestran un gran nucleolo electrodensso. x 4,640.

b. Con mayor aumento se ven muchas mitocondrias (m), vacuolas, algunas conteniendo grasa (vcl) y abundante glucógeno tipo beta (glc). Las flechas señalan los límites intercelulares donde ocasionalmente se vieron desmosomas. x 14.400. Diagnóstico: Carcinoma de células claras probablemente del riñón.

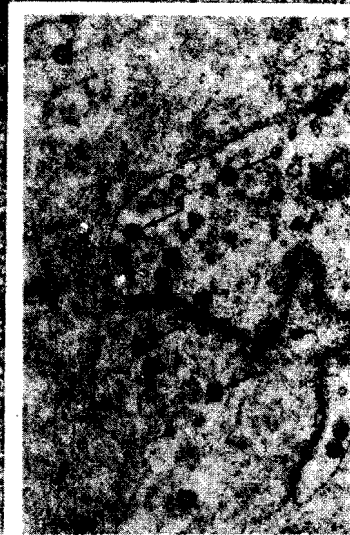
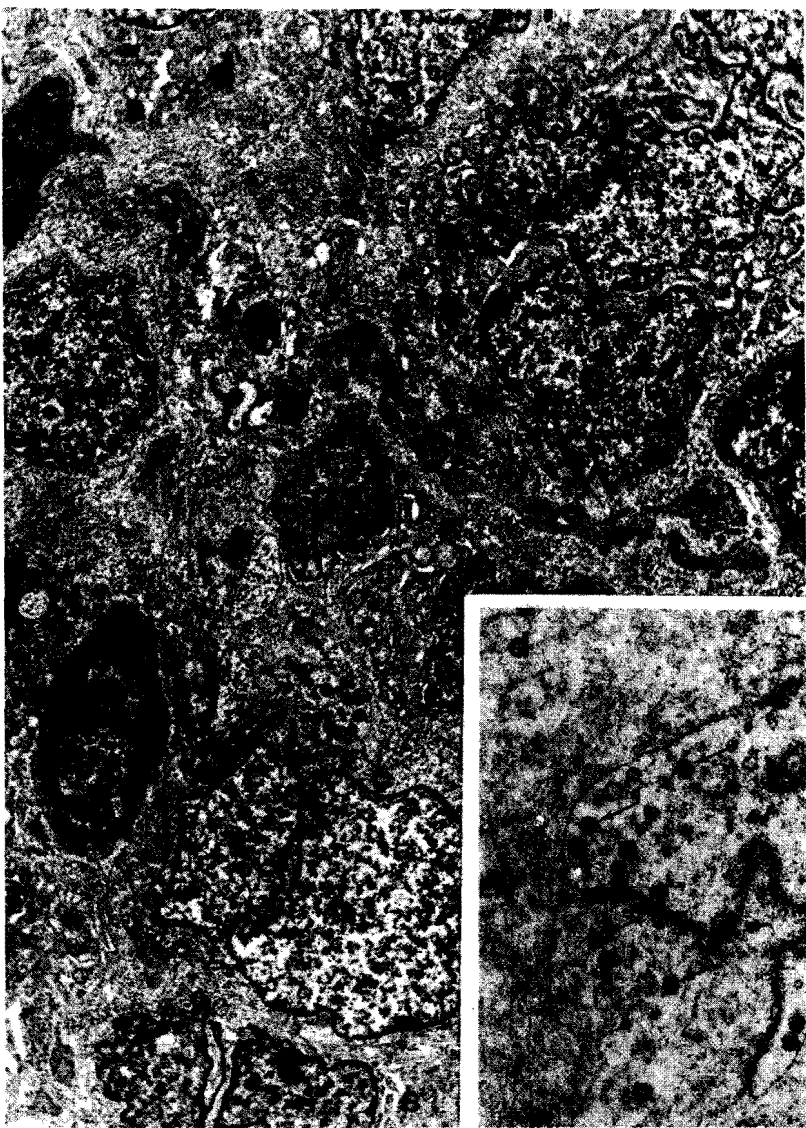


Fig. 15.— ME-526. Carcinoma medular del tiroides.

a. Se ven las células tumorales con núcleo irregular rodeados por fibras colágenas y material fibrilar. x 2.900.

b. Gránulos con aspecto de neurosecreción (flechas) y material fibrilar extracelular de apariencia compatible con amiloide. x 14.400. Diagnóstico: Carcinoma medular del tiroides.

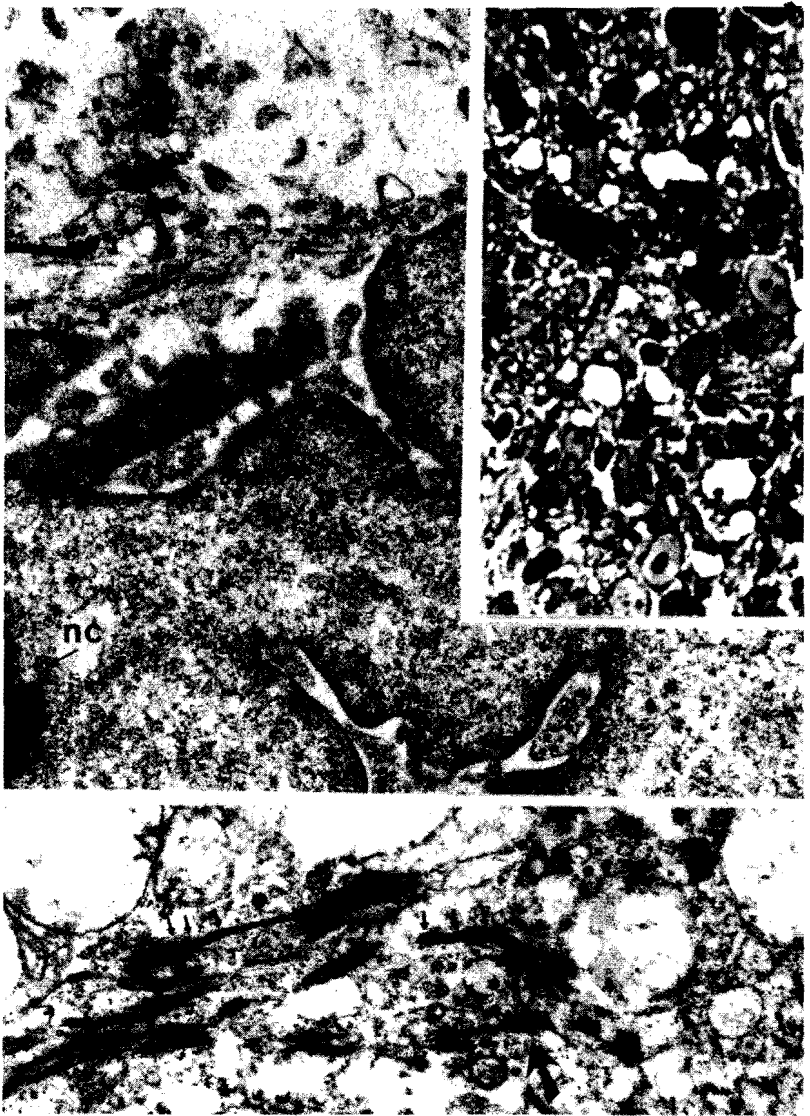


Fig. 16.— ME-283. Punción biopsia de ganglio linfático en un niño. Diagnóstico: tumor maligno indiferenciado. El microscopio electrónico mostró:

a. Desmosomas (flechas) núcleos muy tortuosos (n) con grandes nucleolos (nc), x 14.400.

b. En el material preparado para microscopía electrónica en cortes de una micra de espesor se vieron células de cromatina dispersa y nucleolos grandes entre numerosas células de aspecto linfoide. x 400.

c. Abundantes manojos de tonofilamentos (flechas pequeñas) y desmosomas (flechas gruesas). x 14.400. Diagnóstico: Carcinoma nasofaríngeo.

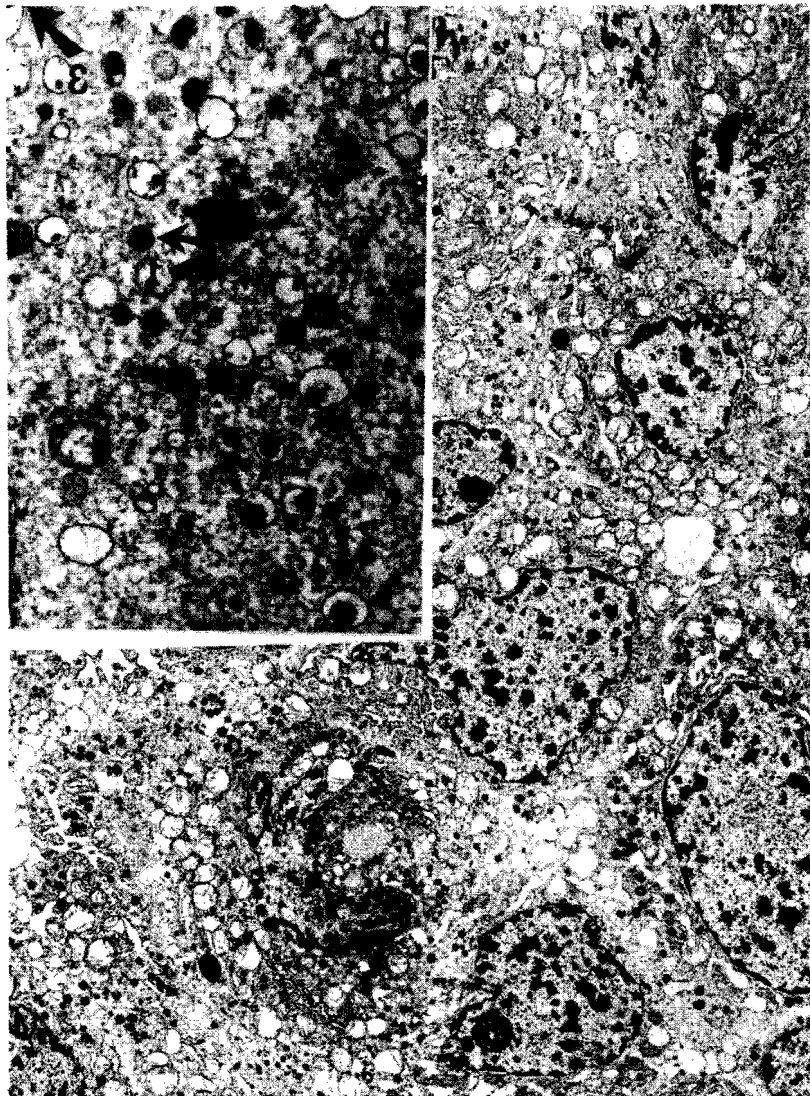


Fig. 17.— ME-258. Tumor suprarrenal.

a. Células con núcleos ovalados o irregulares, algunos con nucleolo visible y citoplasma vacuolado con gránulos electrondensos. x 2.900.

b. Con mayor aumento se observa que los gránulos están limitados por una membrana y varían en tamaño de acuerdo con el espacio entre ésta y el material electrondenso central 1 - 2 y 3. x 36.100. Diagnóstico: Feocromocitoma.

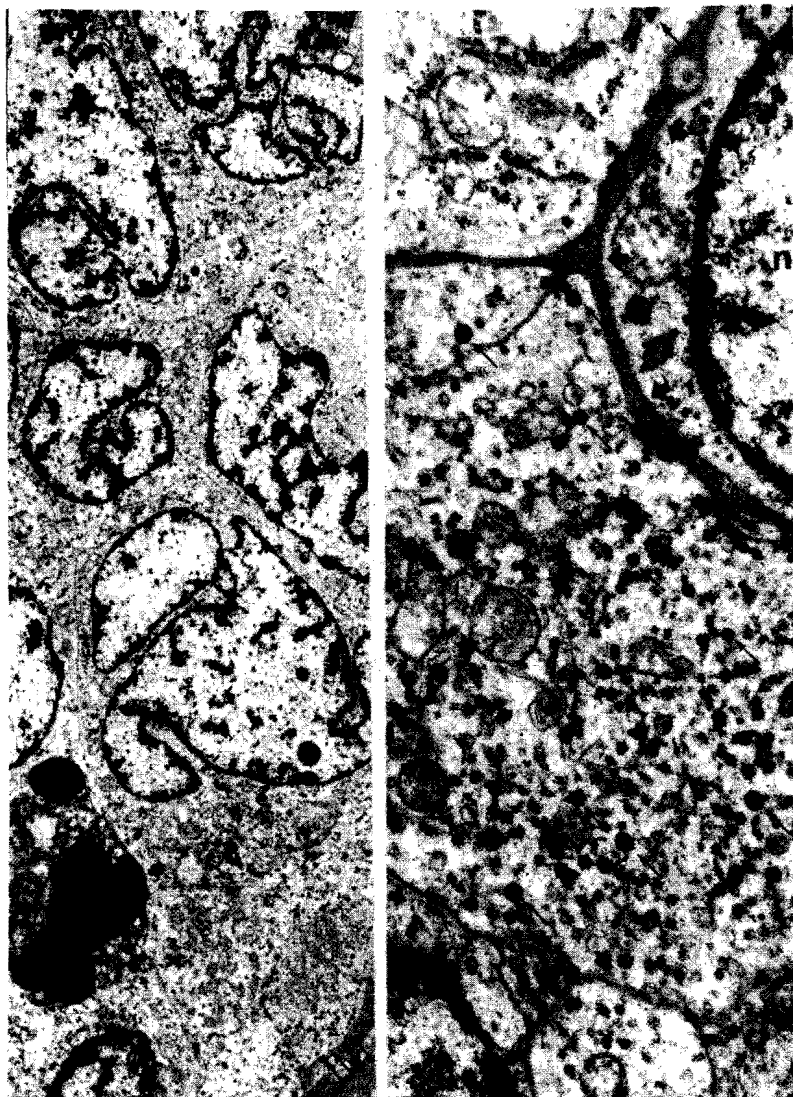


Fig. 18.— ME-2. Biopsia pre-escalénica diagnosticada dos años antes como carcinoma indiferenciado. La paciente presenta tumor en ambos ovarios. Diagnóstico: Carcinoma indiferenciado vs tumor de células de la granulosa.

a. Células poliédricas con núcleos irregulares y gránulos electrondensos en el citoplasma (flechas). x 4.640.

b. Con mayor aumento se observa que los gránulos (flechas) están delimitados por una membrana y entre algunas células se ve material como membrana basal (flechas gruesas). El núcleo (n) muestra la cromatina marginada. x 14.400. Diagnóstico: Tumor carcinoide del ovario.

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