Results

Results

This thesis includes a study of 15 cases, 10 patients of RAS of minor type. 6 males and 4 females and biopsies were taken from them during the ulcerative phase as well as during the ulcer free period after complete healing of the ulcers by 2 weeks. Also 5 control subjects above 30 years old never experienced RAS at any time of their life 3 males and 2 females.

Table (**6**)

	Patient group		Control group	
	Male	Female	Male	Female
Number	6	4	3	2
Total	10		5	

An analysis of the complaint of the patients as regards R.A.S. and other abnormalities in their history :

8 Cases were coming complaining of ulcer itself and its recurrences with mean rate of recurrence 10/6 months 2 cases were coming complaining of upper respiratory tract in fection, low grade fever 38°C and ulcer discovered on routine examination and did not distressing the patient because of its frequent recurrence every 2 weeks.

As regards medical history and examination :

6 of the 10 patients gave history of epigasrric pain, water brush suggestive of gastric ulcer but on endoscopy examination

no ulcer but only erosions in 5 of them and 1 showed peptic ulceration in the form of duodenal ulcer, the 5 cases gave good response to antacids therapy and the 1 case continues on antiulcer treatment.

one of the five volunteer controls gave history of hyperacidity 1 year ago and responded well to antacid therapy.

Table (7)

Diseased group 10 patients	Control group 5 patients
5 of them with history of hyperacididy & erosions. 1 Peptic ulcer.	1 gastric erosions previously

Microscopic findings :

The control group:

The glands are mixed but mostly mucous with a few caps of serous entities, Fig(1) , but some regions of the glands were completely mucous in nature.

The ducts were wide with lining epithelium of cuboidal to columnar types which in large ducts stratified columnar epithelium could be observed .

The secretion in the control group is profuse and aquous which represented by wide lumina of the acini and increased size of the secreting cells.

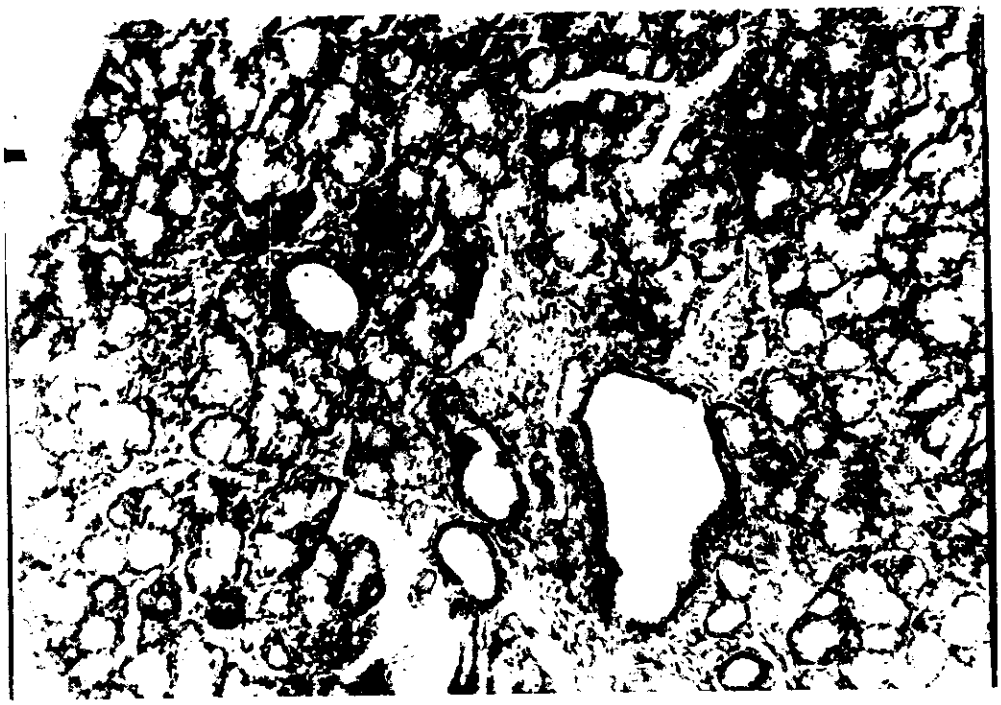
The diseased group and in between attacks.

The acini were reduced in volume and even decreased in unmber or atrophied with very apparent intraluminal sloughed cells (Fig. 2a)

The ducts were narrower than in controls (Fig 2b) and revealed also intraductal sloughed epithelium, its secretion of mucous becomes scanty but concen trated and the serous secretion appeared to be more than controls which may contain more lytic
enzymes .

Using **Alcian blue -PAS- safranin stains,** acini revealed in control group that the production of mucous secretion was mainly of acidic mucopolysaccharides in profuse amounts, but very scanty sulphated matrix of interstitial tissue Fig (3)

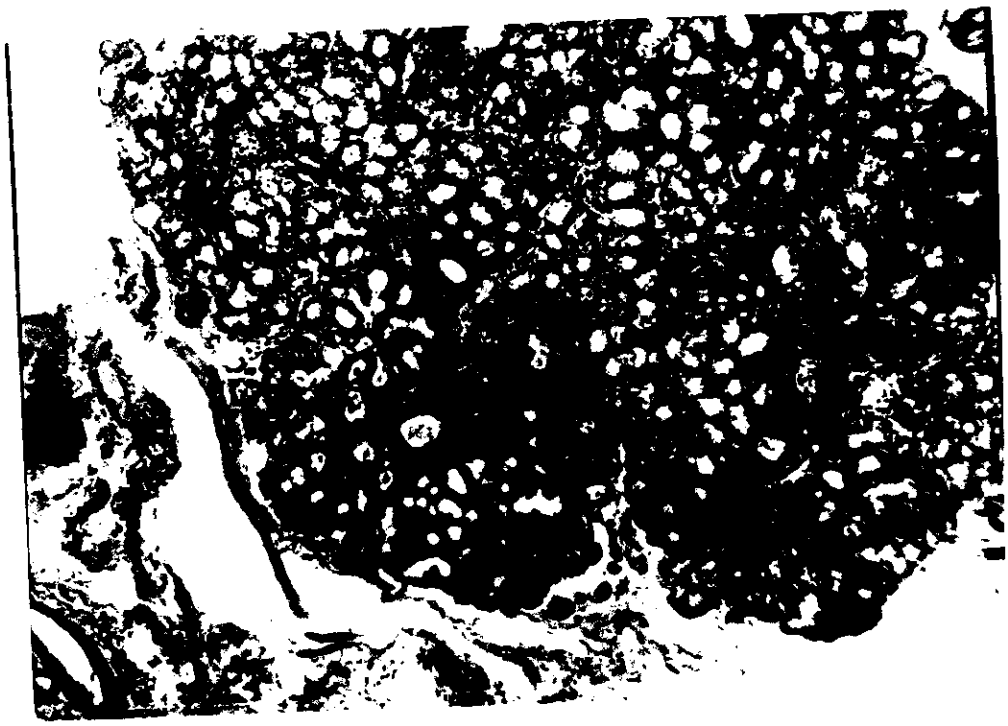
On the other hand the diseased glands revealed scanty but concentrated acidic mucopolysaccharides (blue) and more sulphated interstitial connective thissue matrix (Fig 4) than in controls. Also, in diseased cases the large ducts exhibited acidicmuco- polysaccharides secreting cells in the superficial hairy cells of the straified columnar lining epithelium.



(Fig. 1) :

A photomicrograph of the human minor labial salivary glands (L . S . G) of control group showing the labial gland to be surrounded with fibrous C.T. capsule from which were derived C.T. septa.

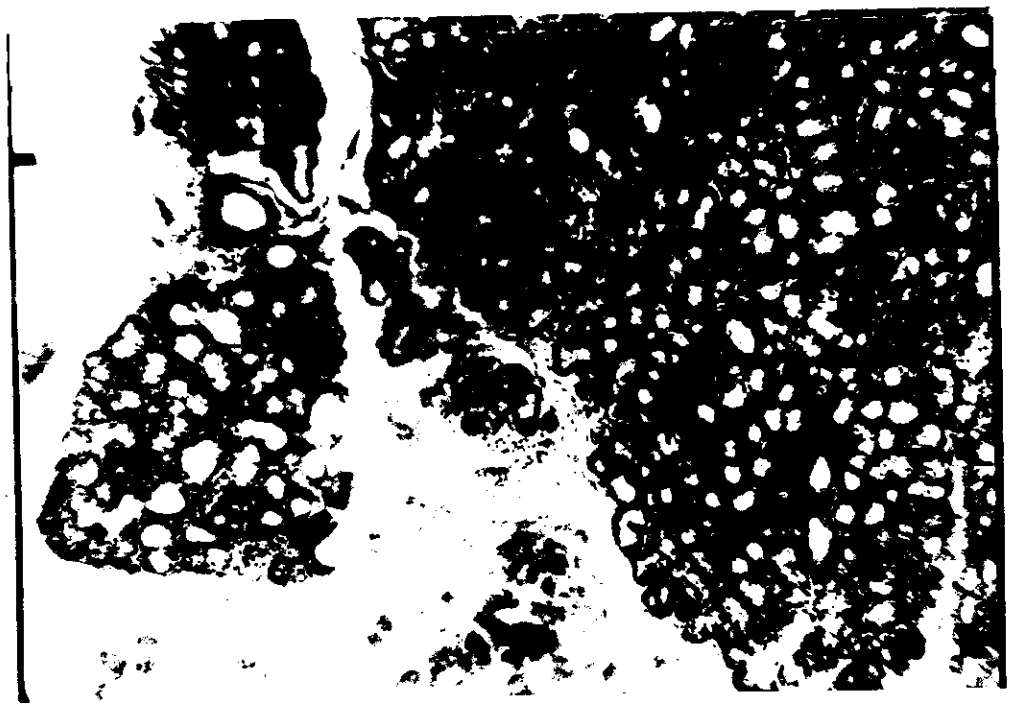
Haematoxylin and eosin stain, X 100.



(Fig. 2a) :

A photomicrograph of patient human minor L.S.G showing atrophied acini.

Haematoxylin and eosin stain, X 100.



(Fig. 2b) :

A photomicrograph of patient human minor L.S.G during the ulcerative phase showing the ducts are narrower than control.

Hematoxylin and eosin stain, X 100.

Fig. (3) :

A photomicrograph of human minor L S G of control showing very scanty sulphated matrix of interstial tissue .

Alcian blue - P A S - safranin stains x 100

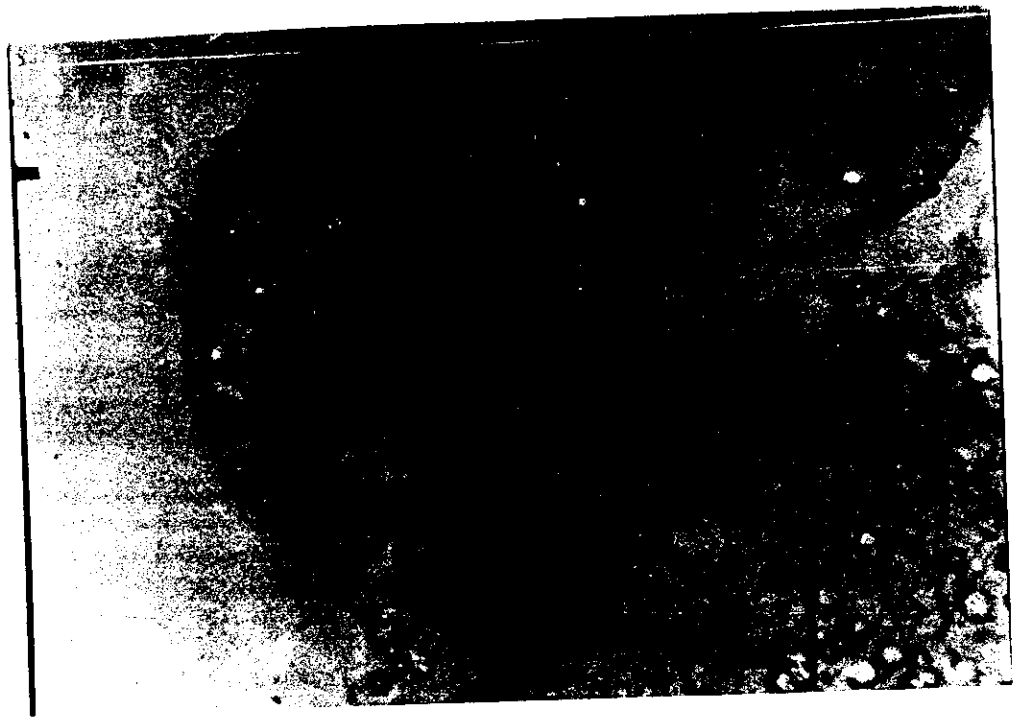


fig (4) :

A photomicrograph of patient human minor L.S.G showing concentrated acidic mucopolysaccharides (blue) and more sulphated interstitial connective tissue .

Alcian blue - P A S - safranin stains X 100 .

Histochemical findings :

I- Succinate dehydrogenase :

A- In control specimens

The secretory end pieces showed variable degrees of weak to moderate reactions (Fig 5) where the reaction is in the form of diformazan granules distributed more peripherally in the cells than at the lumenal regions. The nuclei of the cells were negatively reacted so, appeared as white areas (Fig. 6). The execretory ducts revealed a stronger reactions than the secretory end pieces. (Fig. 5,6).

B- Patients in between attacks :

The reaction for succinate dehydrogenase was slighter than the control group. (Fig 7). In both secretory units and execretory ducts.

C- Patients in the ulcerative phase :

The reaction for succinate dehydrogenase was nearly nil in both secretory and excretory units (Fig. 8), but only intraglandular skeletal muscle fibres were strongly reacted for succinate dehydrogenase (SDH) (Fig.9).

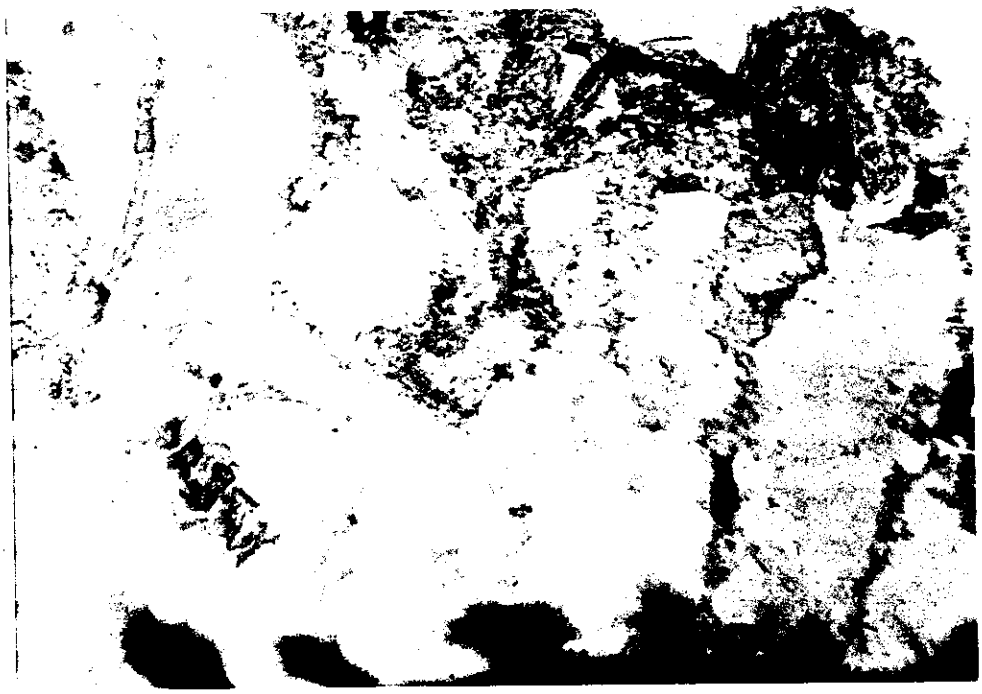


Fig. (5) :

A photomicrograph of human minor L S G of control group showing succinate dehydrogenase reaction as variable degrees of weak to moderate reaction distributed more peripherally.

N.B.T. method x 100.

Fig. (6) :

A photomicrograph of human minor L.S.G succinate dehydrogenase reaction of control group showing the nuclei of the cells negatively reacted so appeared as white areas.

N.B.T. method x 100.

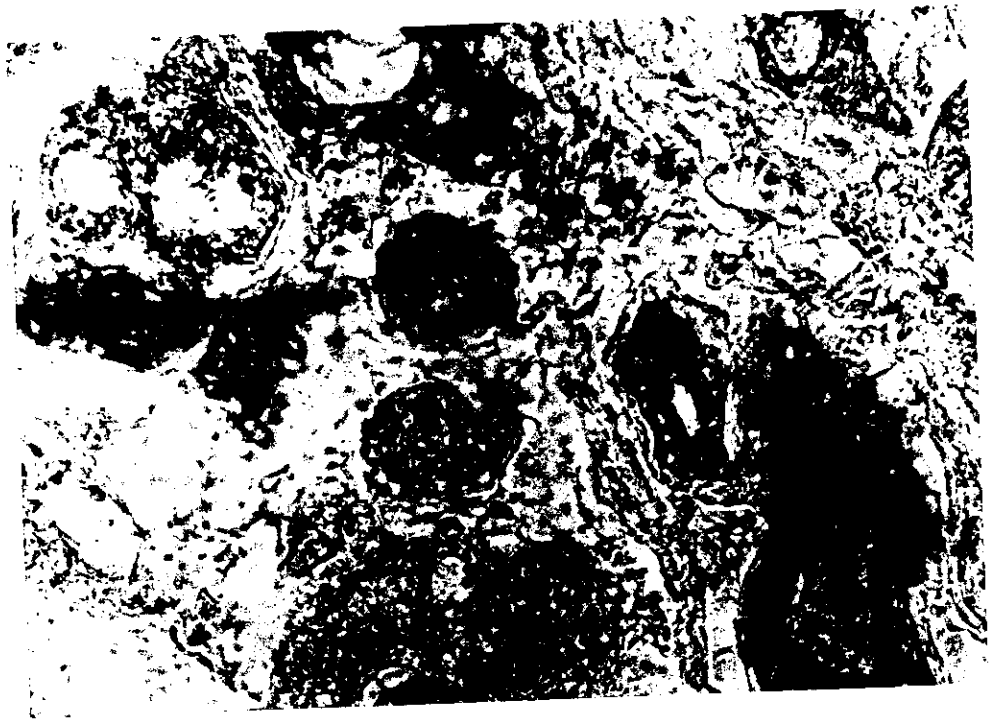


Fig. (7) :

A photomicrograph of patient human minor L.S.G. in between attacks showing succinate dehydrogenase reaction slighter than in the control group in both secretory and excretory units.

N.B.T. method x 100.

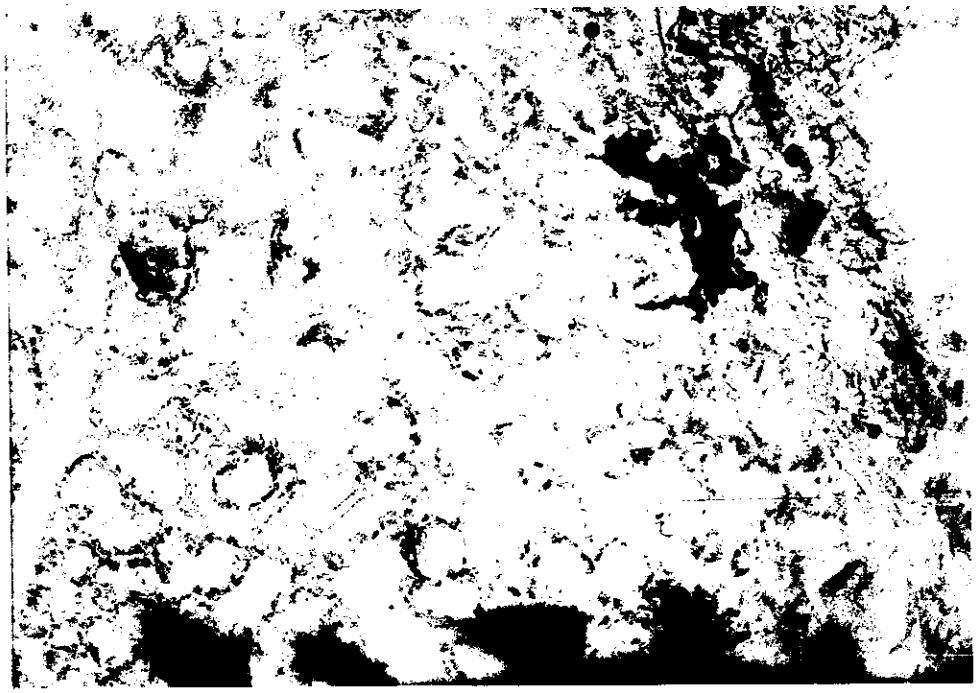


Fig. (8) :

A photomicrograph of patient human minor L.S.G. during the ulcerative phase showing the reaction for succinate dehydrogenase to be nearly nil in both secretory and excretory units.

N. B. T method x 100.

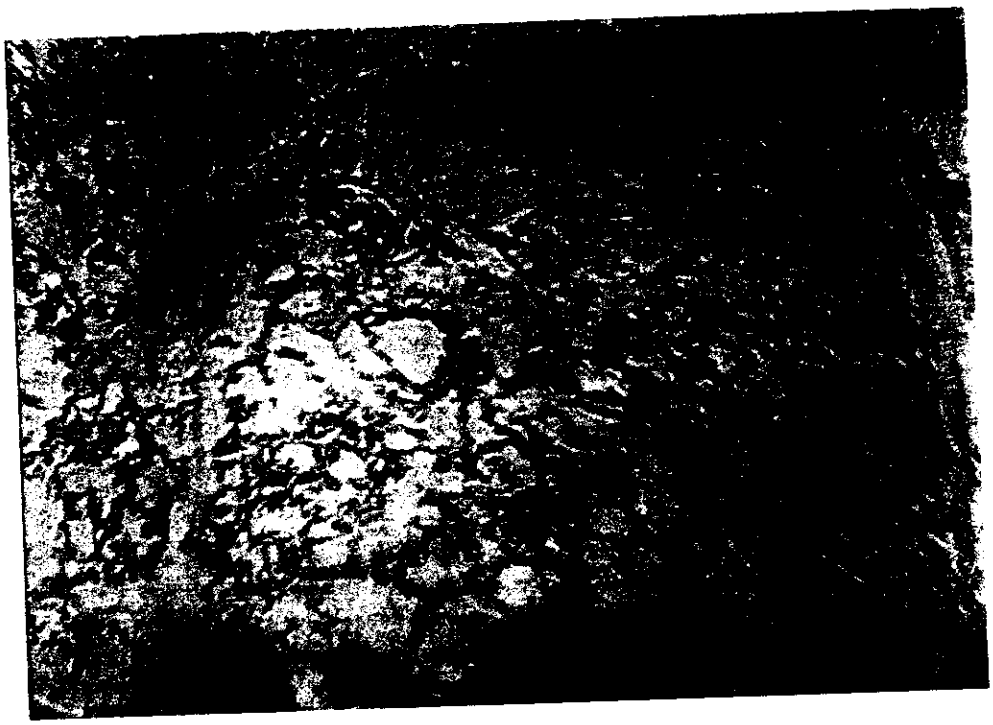


Fig. (9) :

A photomicrograph of patient human minor L.S.G. during the ulcerative phase showing the reaction for succinate dehydrogenase to be strong in the intraglandular skeletal muscle fibres. But negative in the secretory & excretory units.

N. B. T. method, X 100.

II- Acid Phosphatase :

A- Control group :

The reaction was moderate or weak in patchy areas. (Fig. 10), the reaction was slightly stronger at the luminal border of secretory cells, otherwise, it was evenly distributed. The C.T. in between the lobules or secretory end pieces revealed a negative reaction. (Fig.10).

B- Patients in between attacks :

The reaction was nearly similar to control group but the luminal border of cells had no specific stronger reaction (Fig.11).

C- Patients during ulcerative phase :

The reaction was stronger than the control group (Fig. 12) especially in patchy areas than others, the reaction in both secretory and excretory cells had no varied pictures (Fig. 13).

Myoepithelial cells had no specific character of reaction in any of the control group, patients in between attacks or patients during disease state.

The inter lobular C.T. was negatively reacted.

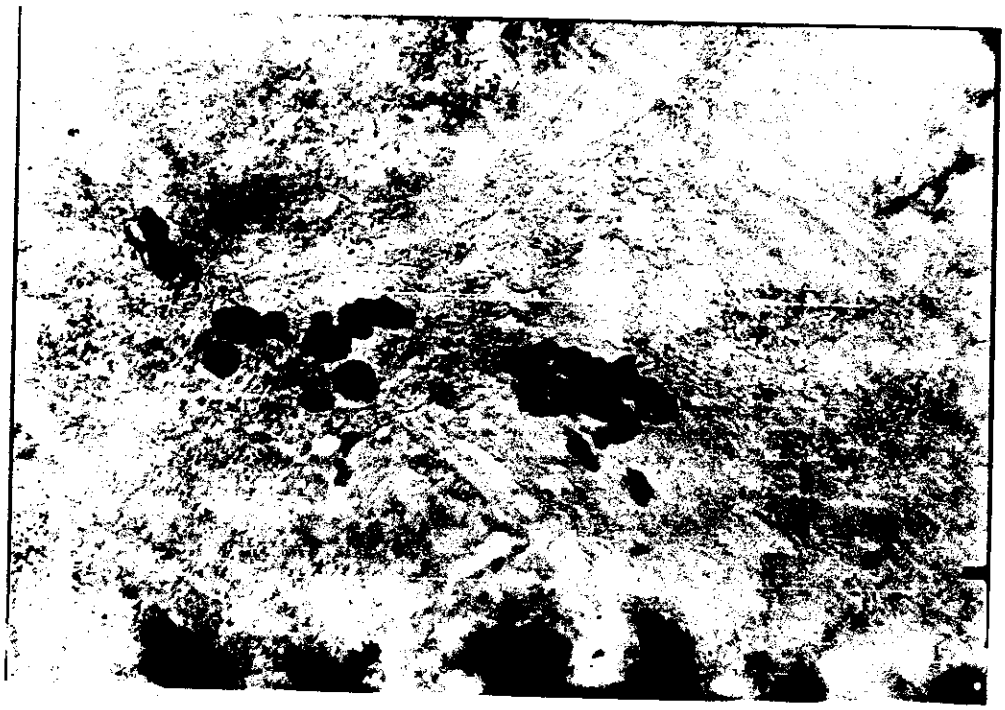


Fig. (10) :

A photomicrograph of human minor L.S.G. of control group showing acid phosphatase reaction as moderate or weak in patchy areas, slightly stronger at the luminal border of secretory cells, C.T. between the lobules showed - ve reaction.

Azo-dye coupling method, X 100.

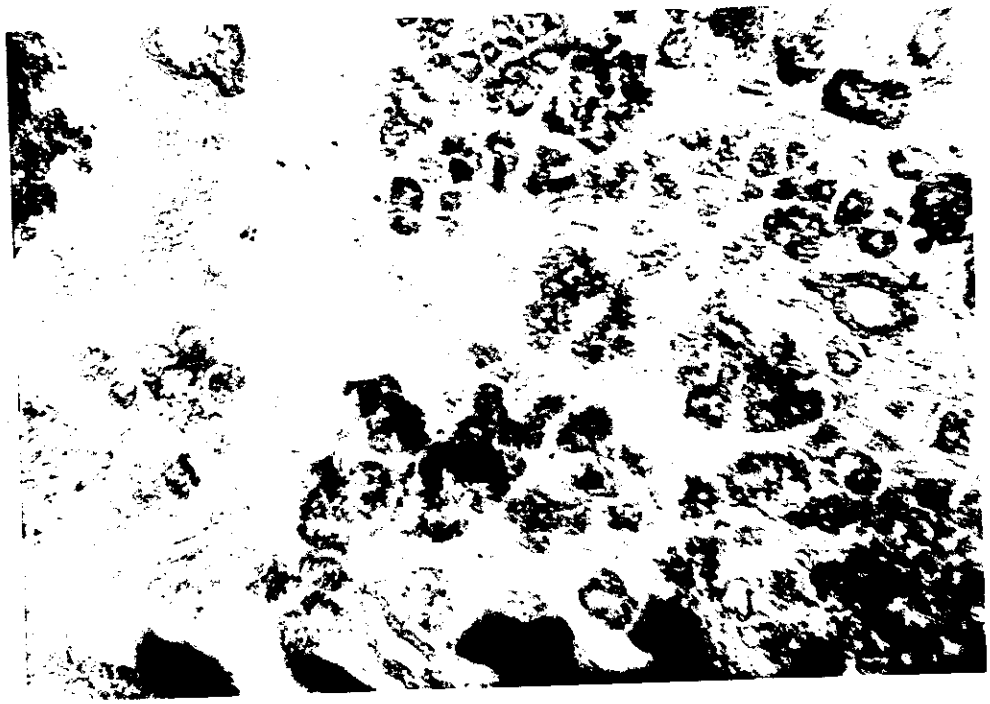


Fig. (11) :

A Photomicrograph of human minor L.S.G of patient group in between attacks showing the reaction for acid phosphatase nearly similar to the control group but the luminal border of cells had no specific strong reaction.

Azo-dye coupling method, X 100.

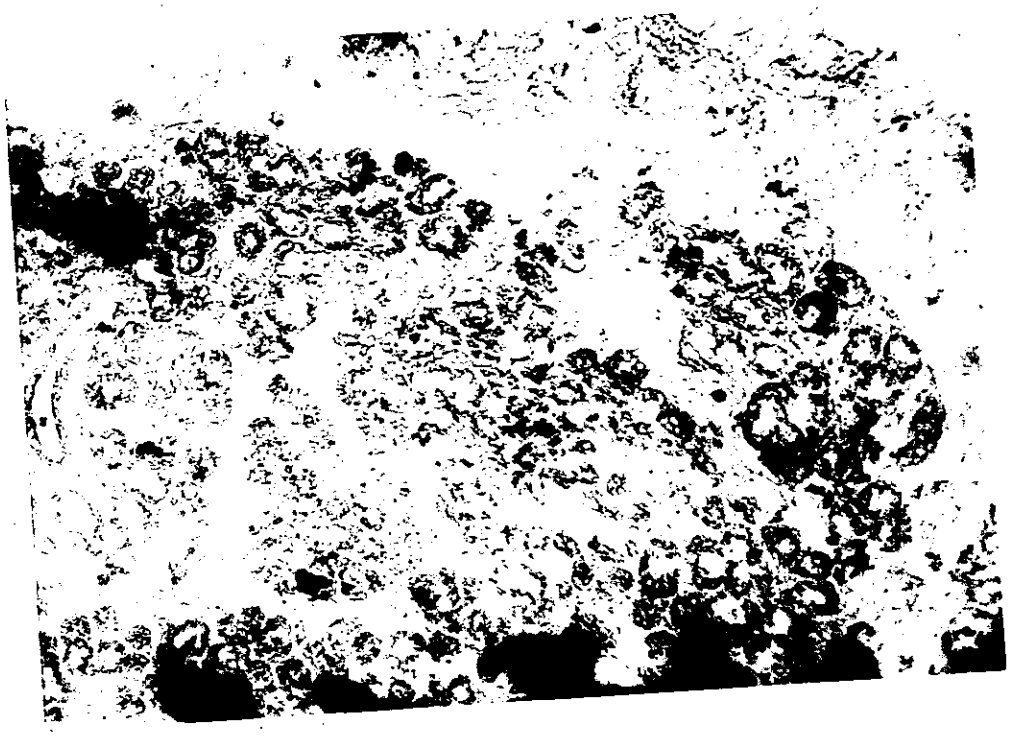


Fig. (12) :

A photomicrograph of human minor L.S.G of patient group during the ulcerative phase showing the reaction for acid phosphatase to be stronger than the control group.

Azo-dye coupling method, X 100.

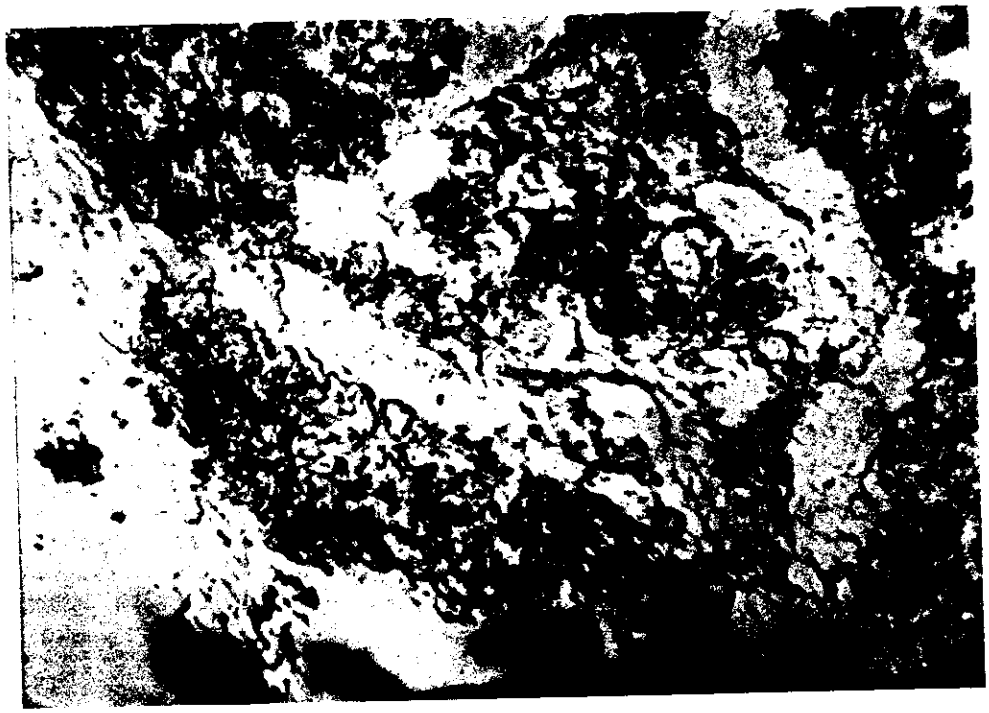


Fig. (13) :

A photomicrograph of patient human minor L.S.G during the ulcerative phase showing the reaction for acid phosphatase to be not varied in both secretory and excretory cells.

Azo-dye coupling method, X 100.

III- Alkaline phosphatase :

A- Control group :

The reaction for alkaline phosphatase exhibited a strong reaction in both secretory and excretory unit cells. (Fig. 14) the reaction inside the cells was more condensed basally and at luminal borders of cells. The inter acinar and interlobular C.T.was negatively reacted.

B- Patient group in between attacks :

The reaction was comparatively slighter than controls. (Fig. 15).

C- Patient group during ulcerative phase :

The reaction was very weak in secretory and excretory unit cells, while it was still negative in the interlobular and intralobular C.T. (Fig. 16).

No reaction could be observed in the nuclei of any cell of the glands.

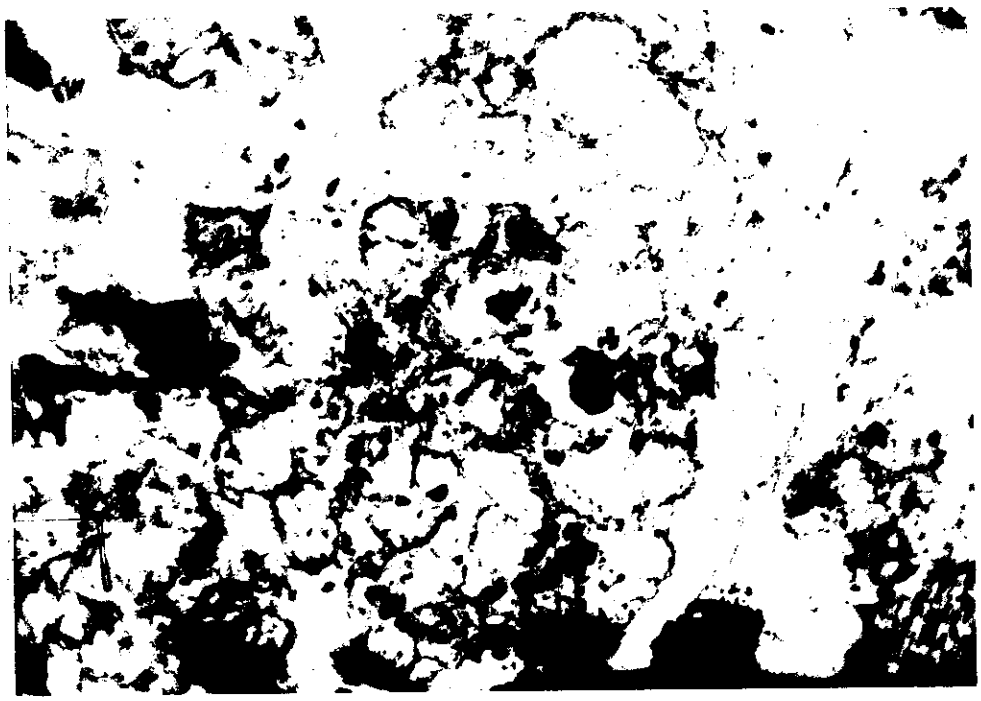


Fig. (14) :

A photomicrograph of human minor L S G of control group showing alkaline phosphatase reaction as strong reaction in both secretory and excretory unit cells.

Calcium cobalt mthod, X 100.

(Fig 15)

A photomicrograph of human minor L.S.G of patient group in between attacks showing the reaction for alkaline phosphatase as comparativly slighter than controls.

Calcium cobalt method, X 100.

Fig. (16) :

A photomicrograph of patient human minor L.S.G. during ulcerative phase showing that the reaction for alkaline phosphatase was very weak in the secretory and excretory unit cell.

Calcium cobalt method, X 100.

Table (8) succinate dehydrogenase reaction :

Site of reaction	control group	Patient group in between attocks	Patient group during attacks
Secretory unit	Weak to moderate more peripheral than in the lumes.	Slighter than controls	Nil
Excretory unit	stronger reaction than the secretory end. pieces	slighter than control	Nil
nuclei	negative reaction	Negative	Negative
N.B.	intraglandular skeletal muscle fs reacted strongely		
Number	5	10	10

Table (9) Acid phosphatase reaction :

Site of reaction	control group	Patient group in between attacks	Patient group during attacks
Secretory end-pieces	Weak or moderate in patchy areas	weak or moderate but luninal border has no specific stronger reaction	Stronger than control group
Excretory ducts	Slightly stronger at the luminal border of secretory cells.	no varied picture	no varied picture
C.T.	-ve reaction	- ve reaction	- ve reaction
	Myoepithelial cells have nospecific character of reaction		
no	5	10	10

Table (10) : Alkaline phosphatase reaction :

Site of reaction	control group	Patient group in between attacks	Patient group during attacks
Secretory units	strong more condensed basally.	slighter	veryweak
excretory	strong	slighter	very weak
C.T.	-Ve	- Ve	- Ve
Nuclei	- Ve	- Ve	- Ve
number	5	10	10

Ultrastructural Studies (E./M)

I- The control group :

- The mucous secretory cells revealed different stages inthe form of light, dark and intermediate cells (Fig. 17)

The light cells revealed rough endoplasmic reticulum and the least number of secretory vesicles, the dark cells had electron dense cytoplasm and more number of secretory vesicles, numerous mitochondria while the intemerdiate cells showed the most numerous light secretory vesicles.

Peripheral to the mucous secretory acini were present serous cells with electron dense granules and rich in mitochondria. Between the bases of secretory cells and the basal lamina are present the myoepithelial cells of light cytoplasm and dark nuclei.

In higher magnification, the intermediate cells had numerous mitochondria (Fig. 18). In more higher magnification the nuclei of the mucous secreting cells, exhibited more condensed hetero chromatin on the inner nuclear membrane, the pores of nuclear membrane were difficult to be seen (Fig. 19)

The cell junction between the secretory mucous cells revealed numerous gap junctions or nexuses. In between the rough endoplasmic reticulum of mucous secreting cells were scattered ribosomes or polysomes. The secretory vesicles appeared to be continous in most of them with the adjacent ones (Fig. 20).

Fig. (17) :

Electron micrograph of human minor L.S.G. of control group showing. Light (L), dark (d) and intermediate cells (in), with numerous mitochondria, myoepithelial cell (myo).

X- 6 250

Fig. (18) :

Electron micrograph of human minor L.S.G. of control group showing. Intermediate cells (in) had numerous mitochondria.

X- 10000

Fig. (19) :

Electron micrograph of human minor L.S.G of control group showing, the nuclei of mucous secreting cells exhibited more condensed heterochromatin on the inner nuclear membrane so, pores of nuclear membrane (nuc) were difficult to be seen. numerous gap junctions or nexuses (ne).

X - 15000

Fig (20) :

Electron micrograph of human minor L.S. G of control group showing, secretory vesicles to be continuous (arrows). mitochondria were electron dense and their cristae were difficult to be seen (d).

X- 37500

As well, the mitochondria were electron dense and their cristae were difficult to be seen. These mitochondria showed variable diameters and forms, mostly vesicular and not filaments.

In more higher magnification the mitochondria of intermediate type of mucous secreting cells showed their double limiting membrane, and contained indistinct cristae as well as electron dense matrix (Fig. 21). Some mitochondria revealed central more dense matrix, than others, while other mitochondria had absolutely electron dense matrix, in between the mitochondria, polysomes in the form of rosettes or linear (Fig 21).

The dark mucous secreting cells revealed more numerous scatterred ribosomes or polysomes, but fewer mitochondria (Fig. 22). as also fewer rough endoplasmic reticulum. The Golgi complex had narrow cisternae and few related vesicles, the mucous secreting vesicles had irregular contours, where mitochondria may indent these vesicles.

The nucleus of light mucous secreting cell revealed distinct nucleolus having three regions (Fig. 23), the lighter one is the pars amorpha, the intermediate coloured region is the granular region or pars nucleolonema, while the darker region is fibrillar region of pars nucleolonema. The nuclear membrane the

chromatin is distributed into only two regions part which is adherent to the inner nuclear membrane, in termediate chromatin patchy regions, but there isno perinuclear chromatin.

For description of light mucous secreting cell, the cytoplasm has parallel cisternae of rough endoplasmic reticulum (Fig. 24) also few spherical mitochondria appear between the cisternae, the lamina of the rough endoplasmic reticulum revealed granular proteinaceous material of electron lucent configuration. Through the same acinus three types of cells are present (Fig. 25). dark with fewer secretory intracytoplasmic vesicles, intermediate cell with many large secretory mucous vesicles and many cisternae of rough endoplasmic reticulum as well as many mitochondria. Lighter overladen cells with mucous vesicles or vacuoles ready for secretion. The three types of cells report different stages of secretion of the secretory mucous cells.

The myoepithelial cells surrounding the acini could be di fferentiated into dark cells with elongated or bar- shaped hyper chromatic nucleus and lighter cells. Peripheral to the myoepithelial cells is present the basal lamina, common for the acinus and myoepithelal cells. The basal part of cell membrane of secretory cell adjacent to the myoepithelial cells revealed electron dense appearance. (Fig. 26).

Fig. (21) :

Electron micrograph of human minor L.S.G. of control group showing:

- The mitochondria of intermediate type of mucous secreting cells showed their double limiting membrane (mem).
- some mitochondria showed central more dense matrix (den)
- other mitochondria had absolutely electron dense matrix (mat)
- In between the mitchondria polysomes in the form of rosettes or linear (Lin), were found.

X- 100000

Fig. (22) :

Electron micrograph of human minor L.S. G of control group showing :

- Dark mucous secreting cells revealed more numerous scattered ribosomes.
- Fewer rough endoplasmic reticulum (ro)
- The Golgi complex had narrow Cisternae (Cis) and few related vesicles (V).
- The mucous secreting vesicles had irregular contour (arrows) where mitochondria may indent these vesicles (in)

X - 75000

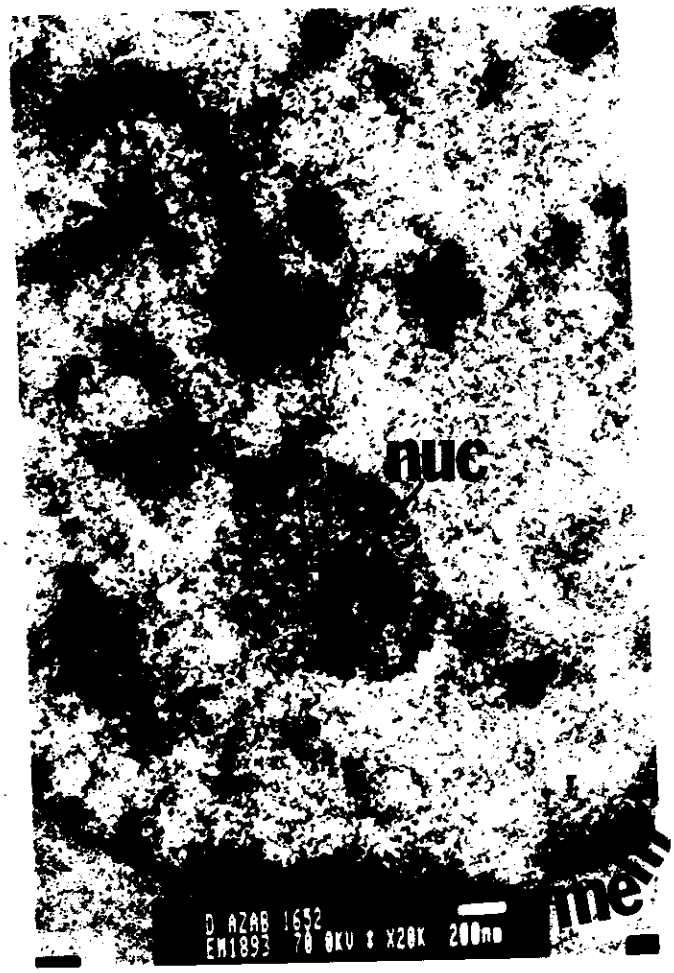


Fig. (23):

Electron micrograph of human minor L.S.G of control group showing :

- Nucleus (nuc) of light mucous secreting cell. revealed distinct nucleolus having 3 regions pars amorpha, pars nucleolonema, fibrillar and par nucleolonema granular.
- The nuclear membrane (mem) the chromatin is only distributed in 2 regions.

X - 50000

Fig. (24) :

Electron micrograph of human minor L.S. G of control group showing.

- Light mucous secreting cell showing the cytoplasm has parallel cisternae of rough endoplasmic reticulum.
- Few spherical mitochondria appears between the cisternae (m).

X- 75000

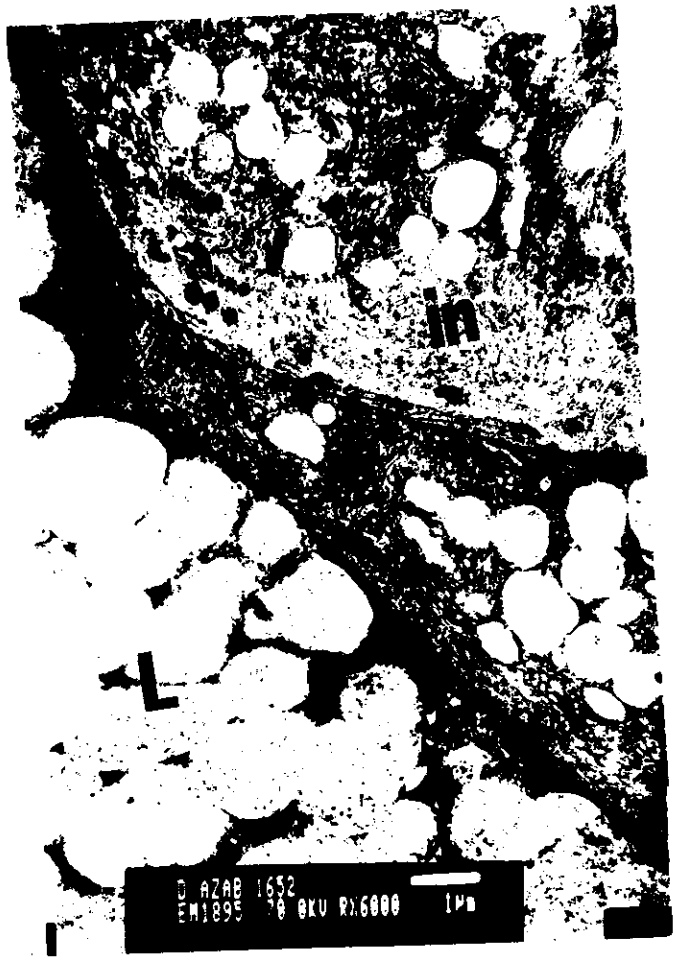


Fig. (25) :

Electron micrograph of human minor L.S.G. of control group showing -3 types of cells are present.

- Dark with fewer secretory intracytoplasmic vesicles (d).
- Intermediate cell (in) with many large mucus secreting vesicles.
- Lighter overladen cell (L) with mucous vesicles ready for secretion.

X - 15000

Fig. (26):

Electron micrograph of human minor L.S. G of control group showing :

- Myoepithelial cell surrounding the acini could be differentiated into dark (d) cells with elongated bar-shaped hyperchromatic nucleus.
- Basal lamina (bs) common for the acinus and myoepithelial cells.
- The basal part of cell membrane of secretory cell adjacent to the myoepithelial cells revealed electron dense appearance (arrow).

X - 25000

The secretory acinar cells are surrounded by wide pericellular space, through which is present granular matrix and few basal cellular extensions (Fig. 27).

The cellular junctional complex beginning from the apex of the secretory cell towards their bases, could be revealed in consecutive manner as following. zonula occluders, zonula adherens, macula adherens, and modified jap junction or nexus between 2 adjacent secretory mucous cells (Fig. 28).

The apical borders of secretory mucous cells revealed short single or muliple coated microvilli and the lumen is irregular.

The process of secretion is revealed in (Fig. 29). At which the mucigenous granules adherent to the apical border of cell for fusion between the mucigenous granular membrane and that of the cell membrane, hence, the secretory products are discharged at this weakest point of fusion.

In a section through the inter lobular septa (Fig. 30) an exeretory duct having cuboidal cells, some of their nuclei were more heterchromatic while other nuclei are less heterochromatic, both two types of lining cells had cytoplasm rich in mitochondria and electron dense serous seretory proteinaceous granules. The cells were slightly showed adjacent cytoplasmic extensions, Peripheral to the epithelial cells of these exretory ducts are present collagenic bundles passing in various directions fibroblasts and mast cell.

Fig. (27):

Electron micrograph of human minor L.S.G. of control group showing :

- The secretory acinar cells are surrounded by wide pericellular space (s).

X - 62500

Fig. (28) :

Electron micrograph of human minor L.S.G. of control group showing :

- The cellular junctional complex beginning from the apex towards their bases, could be revealed in consecutive manner as following zonula occludens (z - o), zonula adherens (z - a) macula adherens (m - a) and modified jap junction or nexus, (nex)

X - 62500

Fig. (29):

Electron micrograph of human minor L.S.G. of control group showing :

- Apical borders of secretory mucous cells revealed short single or multiple coated microvilli (m V) and the lumen (lum) is irregular.
- The process of secretion is revealed at which the mucigenous granules adhere to the apical bòrder of cell for fusion between the mucigenous granular membrane and that of the cell membrane (arrows).

X- 62500

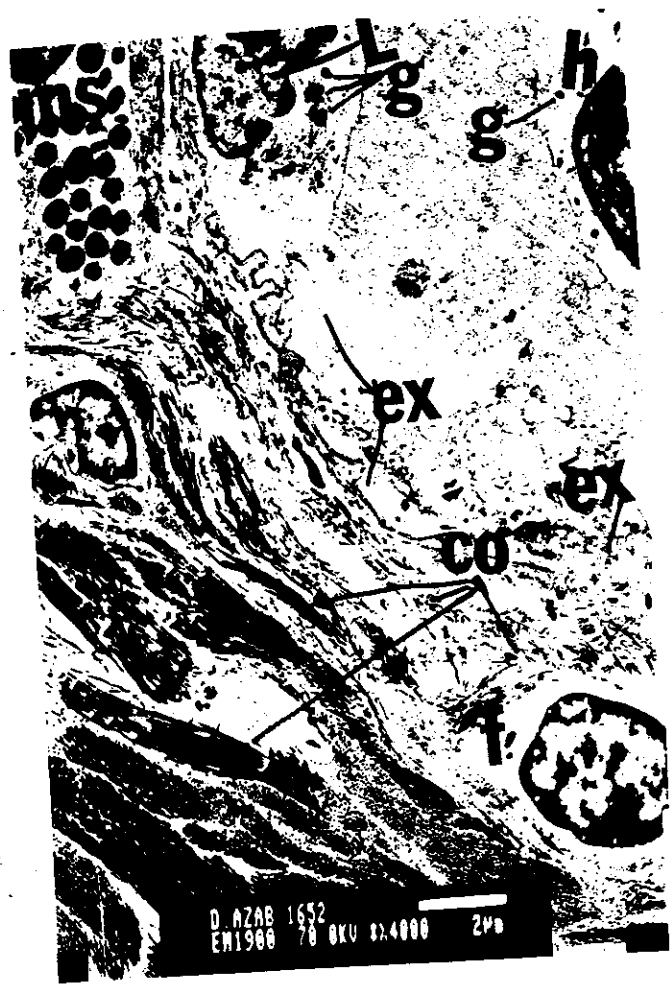


Fig. (30):

Electron micrograph of human minor L.S.G. of control group showing :

- Excretory duct having cuboidal cells, some of their nuclei were more heterochromic (h), other nuclei are less heterochromic (L) - electron dense serous secretory proteinaceous granules(g).
- Slightly showed adjacent cytoplasmic extensions (ex).
- Collagenic fibres in various directions (co), Fibroblasts (F), mast cell (ms).

X - 10000

Patient group in between attacks :

The secretory cells revealed destructed mitochondria, as secondary lysosomes (autophagosomes) of variable sizes and had over electron density and vacuolated disturbed endoplasmic reticulum. (Fig. 31).

The endoplasmic reticulum exhibited slightly distended cisternae, of endoplasmic reticulum, mitochondria lost their contours, so their limiting membranes were rarely discerned (Fig. 32).

The endoplasmic reticulum due to its widened cisternae and clear contents revealed variable diametered profiles, the ribosomes were slightly destructed and lost their regular distribution on the outer surface of endoplasmic reticulum. (Fig 33). also destructed mitochondria and numerous lysosomes.

The mucigenous granules revealed destruction. Some of the granules had small internal electron dense granules. The hetero chromatin patches exhibited Light areas (Fig. 34) than in controls.

In higher magnification, the rough endoplasmic reticulum lost its regular parallel arrangement, instead they revealed curved cisternae, also the cisternae had patchy areas of dark and light regions (Fig. 35).

Inside the lumens of acini the microvilli were destructed and dissolved (Fig. 36).

The myoepithelial cells around the acini had lesser heterochromatin (Fig 37) in comparison to the control one (Fig. 26). As they become more active and help in evacuation, of secretion as it revealed distinct myofilaments in their cytoplasm.

In the cytoplasm of secretory cells distended cisterns of Golgi were very distinct. The heterochromatin of their nuclei was evenly distributed, increased number of lysosomes (Primary and secondary) (Fig, 38).

Fig. (31):

Electron micrograph of patient human minor L.S.G. in between attacks showing :

- Secretory cells with destructed mitochondria (des) as secondary lysosomes which had an electron density.
- Vacuolated disturbed endoplasmic reticulum (Vac).

X - 75000

Fig. (32):

Electron micrograph of patient human minor L.S.G in between attacks showing :

- Slightly distended cisternae (cis) of endoplasmic reticulum.
- Mitochondria lost their contours.

X- 37500

Fig. (33):

Electron micrograph of patient human minor L.S.G. in between attacks showing :

- The endoplasmic reticulum due to its widened cisterns. and clear contents revealed variable diametered profiles (arrows).
- Ribosomes are slightly destructed and lost their regular distribution of the outer surface of E.R.
- Destructed mitochondria (m) numerous lysosomes (L).

X - 18750

Fig. (34):

Electron micrograph of patient human minor L.S.G. in between attacks showing :

- The mucigenous granules revealed destruction (des).
- Some of the granules had small internal electron dense granules (d).
- The heterochromatin patches exhibited light areas.

X - 37500

Fig. (35):

Electron micrograph of patient human minor L.S.G in between attacks showing :

- The rongh endoplasmic reticulum lost its regular parallel arrangement, instead they revealed curved cisternae.
- The cisternae had patchy areas of dark and light regions.

X - 50000

Fig. (36) :

Electron micrograph of patient human minor L.S.G. in between attacks showing :

- Inside the lumen of the acini, the microvilli were destructed (arrows) and dissolued.

X- 85000

Fig. (37) :

Electron micrograph of patient human minor L.S.G. in between attacks showing myoepithelial cells around the acini had lesser heterochromatin in comparison to control group.

- Distinct myofilaments in their cytoplasm (arrows).

X - 15000

Fig. (38):

Electron micrograph of patient human minor L.S.G. in between attacks showing :

- In the cytoplasm of secretory cells of distended cisternae of Golgi were very distinct (g).
- The heterochromatin of the nuclei is evenly distributed (arrow)
- Increased number of lysosomes primary (P) and seconday (sec).

X- 30.000

Patient group in the ulcerative phase.

The acinar lumina revealed highly destructed microvilli and most of the apical borders were liable to destruction and even were detached from the affcted cells. (Fig. 39).

In light acinar cell, the mitochondria revealed more destruction than in between attacks hence their two outer limiting membranes were difficult to be seen (Fig. 40).

In Golgi complex the vacuoles were highly expanded and had irregular contoures. The endoplasmic reticulum exhibited over distended cisternae and lost their granular contents so become clear.

In dark acinar cells, also destructed mitochondria were common. The nucleus of the cell became completely euchromatic with few heterochromatin patches adherent to the inner nuclear membrane also nucleolus was lost (Fig. 41).

In general the secretory mucigenous granules were fewer than control and most contained concentrated matrix. The mitochondria were commonly losing their cristae, some of them were attacked by prinary lysosomes and destructed inside it as secondary lysosomes. Other separate lysosomes were also seen which increased in number (Fig. 42).

Fig. (39):

Electron micrograph of patient human minor L.S.G. in the ulcerative phase showing :

- The acinar lumen revealed highly destructed microvilli most of the apical borders were liable to destruction and even were detached from the affected cells (arrow).

X - 75000

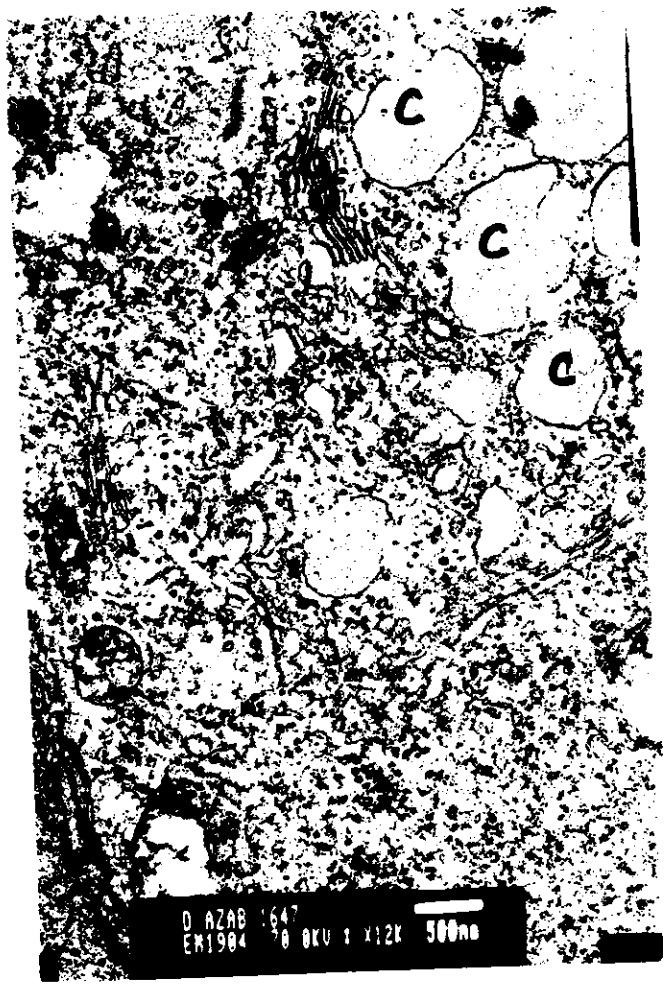


Fig. (40):

Electron micrograph of patient human minor L.S.G in the ulcerative phase showing light acinar cell.

- more destruction of mitochondria.
- In Golgi complex (g) the vacuoles are highly expanded and had irregular contours (c).

X - 30000

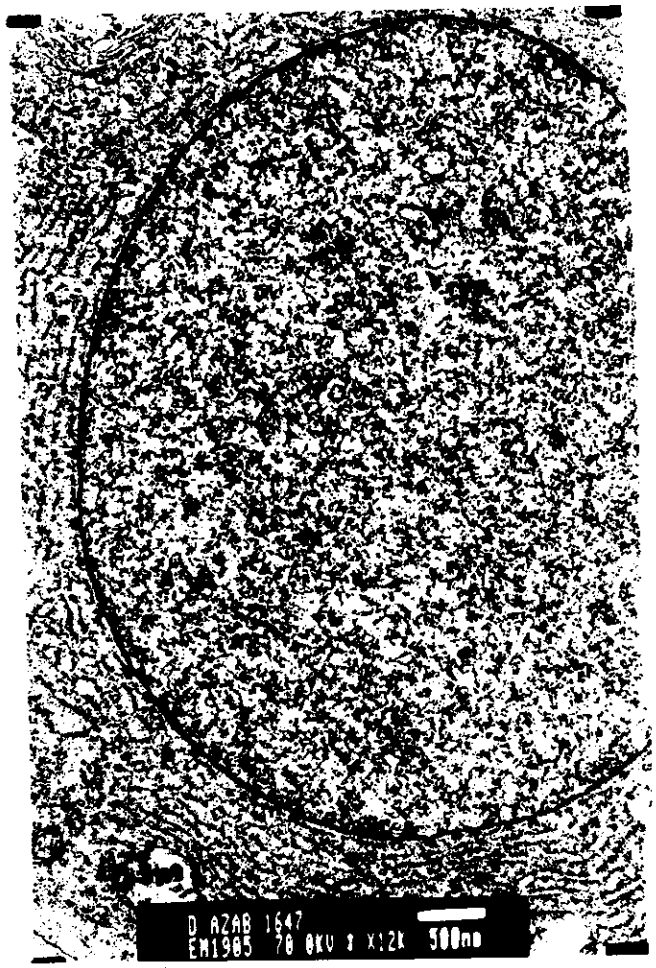


Fig. (41):

Electron micrograph of patient human minor L.S.G. in the ulcerative phase showing :

- Dark acinar cell also, destructed mitochondria (m) were common.

X - 30000

Fig. (42):

Electron micrograph of patient human minor L.S.G. in the ulcerative phase showing :

- Secretory mucigen granules were fewer than control.
- Mitochondria losing their cristae (arrows) some of them were attacked by primary lysosomes and destructed inside and became secondary lysosomes (sec)
- Separate lysosomes were also seen (P).
- Secondary lysosomes are present in adjacent cell (s).

X 15000

Also secondary lysosomes are present in adjacent cell. Most or all acinar secretory cells revealed very few or absent heterochromatin, and thin nucleoli were deviated to peripheral regions of nuclei, so, they are stuck to the inner nuclear membranes, the destructed mitochondria are common (Fig. 43).

Some nuclei of the acinar cells showed the dissolved nucleolus. The acinar cells in adjacent situations revealed an expanded inter cellular infoldings. Some of the destructed mitochondria revealed fine thread-like loops as destructed cristae or shelves (autophagosomes) (Fig. 44).

Although the mucigenous granules revealed fine granular electron lucent matrix, they were bounded by dilated angular endoplasmic reticulum, the cell Junctional complexes were still intact (Fig 45 , 46). The mitochondria were still showing destruction and many of them were in stages of secondary lysosomes or autophagosomes.

Some of the acinar cells revealed indented border and still having absence of heterochromatin. The mitochondria adjacent to the nucleus has two expanded ends , and highly broken cristae which took a concenteric loopings. The adjacent polysomes showed linear course (Fig. 47).

Fig. (43):

Electron micrograph of patient human minor L.S.G. during ulceratire phase showing :

- Most or all of the acinar secretory cells revealed very few or absenthetero chromatin and thin nucleoli were deviated to peripheral regions of nuclei, so, they stuck to the inner nuclear membranes (arrows).

X - 12500

Fig. (44):

Electron Micrograph of patient human minor L.S.G in the ulcerative phase showing :

- Some nuclei of the acinar cells showed the dissolved nucleolus (arrow). The adjacent acinar cells revealed an expanded inter cellular infoldings. (arrows). Some of the destructed mitochondria revealed fine thread like - loops as destructed cristae or shelves (s).

X - 37500

Fig. (45):

Electron micrograph of patient human minor L.S.G. during the ulcerative phase showing :

- Fine granular electron lucent matrix (m).
- The cell junctions were still intact (arrows).
- Mitochondria still showing destruction and many of them were in stages of secondary lysosomes or autophagosomes (aut).

X - 10000

Fig. (46) :

Higher magnification of Fig. (45).

X - 30000

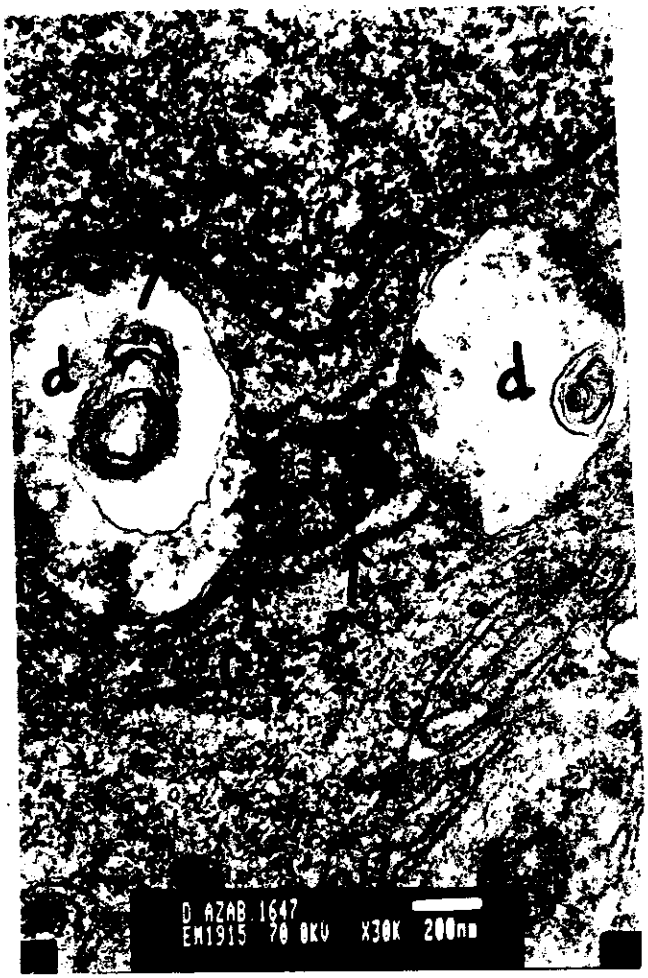


Fig. (47) :

Eectron micrograph of patient human minor L.S.G. during ulcerative phase showing :

- Some of acinar cells revealed indented border (arrows).
- The mitochondrion adjacent to the nucleus has 2 expanded ends (d).
- The adjacent polysomes showed linear course (c).

X 75000

As in between attacks, here also the endoplasmic reticulum having concenteric lamellation with central granular matrix (autophagosomes or secondary lysosomes) and destructed mito - chondria (Fig. 48) microfilaments.

In higher magnification for Golgi complexes it exhibited highly distended mature granular vacuoles. Also an adjacent destructed mitochondrion attacked by primary lysosome and formed secondary lysosome. (Fig 49).

Some of the destructed mitochondria revealed large electron dense internal granules, surrounded with broken cristae. As well some of the degenerated mitochondria were forming completely electron dense bodies as a whole (Fig.50).

In the interlobular septa, the excretory ducts showed light cells having more electron dense nuclei (rich in hetero-chromatin) than those of secretory cells, also their few mitochondria revealed mitochondrion with broken cristae, the cytoplasm is finely granular and lost most of its organelles. Some dilated tubules of smooth endoplasmic reticulum E.R.

Their luminal borders lost their microvilli. (Fig. 51). The surrounding collagenic and elastic fibres were normal. The septal mast cells exhibited clear haloes around their granules which showed variable density. Finally, we can say that the secre tory end pieces of the glands under inves tigation were purely mucous, the cells had various stages of forming secretory mucigen granules.

Fig. (48) :

Electron micrograph of patient human miror L.S.G. during the ulcerative phase showing :

- The endoplasmic reticulum having concenteric lamellation with central granular matrix and destructed mitochon dria (arrows) and microfilaments (mic)

X - 62500

Fig. (49) :

Electron micrograph of patient human minor L.S.G. in the ulcerative phase showing :

- Golgi complex exhibited highly distended mature granular vacuoles (arrow).
- An adjacent destructed mitochondrion (m) attacked by primary lysosome and formed secondary lysosome.

X - 75000

Fig. (50):

Electron micrograph of patient human minor L.S. G. during ulcerative phase showing :

- Some of the destructed mitochondria revealed large electron dense internal granules (g).
- Some of the degenerated mitochondria were forming completely electron dense bodies as a whole (arrows).

X - 50000

Fig. (51) :

Electron micrograph of patient human minor L.S.G. during ulcer ative phase shousing :

- inter lobular C.T shwing :
- Few mitochondria with broken cristae (m).
- Some dilated tubules of somoth endolasmic reticulum (arrows)
- The lumenar border lost its microvilli.
- The surrounding collagenic (C) and elastic fibers (e) were normal.
- The septal most cells exhibited clear haloes around their granules which showed variable density (des).

X - 12500