Peptic ulcer is one of the common gastroduodenal diseases. The major forms of peptic ulcers are chronic duodenal and gastric ulcers. Although present knowledge of etiology of peptic ulcer is incomplete, information from studies in humans and experimental animals indicate that the peptic ulcer is produced when aggressive effects of gastric acid and pepsin dominate the protective effects of gastric or duodenal mucosal resistance.

The precise mechanism whereby the normal stomach and duodenum resist the corrosive effect of acid and proteolytic effect of pepsin has not been defined, but it has been suggested that glycoprotein secreted by gastric mucosa, duodenal mucosa and Brunner's gland may be forming insoluble mucus gel which coats the mucosal surface of the stomach and duodenum.

Earlier it has been reported that peptic ulcer is largely a disease of adult men, and women are immune to peptic ulceration during child-bearing age. It is also known that this immunity is increased in pregnancy.

Sex difference in duodenal ulceration in experimental animals has also been described. This strongly suggests that some hormones help in protection of gastric and duodenal mucosa.
Duodenal ulcer is the commonest form of the peptic ulceration, and there is a strong assumption that duodenal mucosa is protected by glycoprotein, bicarbonate secretion from duodenal and Brunner's gland. Perhaps hormones may be stimulating glycoprotein secretion of pyloric gland cells located near the gastroduodenal junction, goblet cells and cells of crypts of Lieberkuhn in duodenal mucosa and Brunner's glands.

In the light of above information and assumption, that secretion of above-mentioned glycoprotein, bicarbonate protect the duodenal mucosa, the present investigation was undertaken:

i) To find out sex difference in the glycoprotein secretion of secretory cells of duodenum histochemically in pyloroduodenal junctions and histochemically and biochemically in Brunner's glands;

ii) to understand effect of androgen and defensive mechanism of glycoprotein secreted by Brunner's gland cells and other mucus cells;

iii) and to find out effect(s) of estrogen in the protection of duodenal mucosa.
The thesis is divided into six chapters. The first chapter gives

i) A detailed and critical account of the existing literature on peptic ulcer, its definition, etiology and pathogenesis,

ii) glycoprotein, its secretion, structure and functions,

iii) histology, histochemistry of Brunner's glands and other mucus-secreting cells.

The second chapter describes the material and methods employed in the present work.

The third chapter provides the detailed account of sex difference in cysteamine-induced duodenal ulcer and Brunner's glands and other mucus-secreting cells.

The chapter four describes effect of androgen and cysteamine-induced duodenal ulcers, Brunner's glands and other mucus-secreting cells. To study this, duodenal ulcers were induced by cysteamine and administration in castrated and castrated hormone-injected mice.

The fifth chapter deals with effect of estrogen on cysteamine-induced duodenal ulcers, Brunner's glands and other mucus-secreting cells in duodenum. To study this, duodenal ulcers were induced by cysteamine injections in ovariectomised and ovariectomised estrogen-
injected mice. The results obtained were interpreted with the help of previous reports.

The sixth chapter presents a summary of the work and the concluding remarks.

The references cited in the various chapters are enlisted at the end of the thesis.