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Study of 'C 'Cells of Thyroid Gland, its Presence & Position in Fetuses of Different Gestational Age

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***Abstract**: Thyroid gland has follicular structure and in follicle the cells are cuboidal in nature. The colloids are filled in follicles. The presence of 'c' cells and its location in thyroid is a considerable difference of opinion among researchers. My present study is done for enhancement of academic knowledge and support of different opinion given in regards to presence and position of 'c' cells in thyroid gland.*
***Keywords**: Thyroid gland, 'C' cells, Follicular, Epifollicular*

I. Introduction

thyroid gland is a brownish red highly vascular organs situated anteriorly in lower part of neck at the level of 5th to 7th cervical vertebra and 1st thoracic vertebra. Davis (1923) demonstrated that thyroid gland is 1st identifiable in embryo of about 20 somite as a median thickening of endoderm in the floor of pharynx between the 1st and 2nd pharyngeal pouch and immediately dorsal to aortic sac .The thyroid gland ensheathed by a pretracheal layer of deep cervical fascia. Its wt is somewhat 25 gms. The thyroid parenchyma is mainly derived from the endoderm of thyroglossal duct. It is usually considered to develop in to separate follicle approximately spherical structure .02 to .09 mm in diameter, a centre core of colloid surrounded by a single layer of epithelial cells and enclosed in a basal lamina.

II. Material And Method

Thyroid gland of 20 fetuses was dissected. After macroscopic studies of thyroid gland, the tissue is taken for microscopic studies. The fetuses were collected at different time interval from department of Gynecology of UPUMS Saifai. A jar of about 10 liter capacity containing 5 liter 10% formalin solution was kept in labor room for collection of fetuses resulting from intrauterine death and as product of MTP. The fetuses were transferred immediately to Department of Anatomy UPUMS.

Each fetus was dissected to expose thyroid gland. After dissection the thyroid was studied for morphological structure and after that two separate tissues was taken for each Rt and Lt lobe. The size of tissue taken was roughly 5 mm * 5 mm. The tissue was allowed to macroscopic examination and histological processing to prepare the tissue for microscopic studies. The histological process involved were fixation, dehydration, clearing, and wax impregnation, section cutting and staining. The section so stained was mounted with DPX under cover slip and the slide so prepared was examined under light microscope to study. The microphotograph of suitable slide was taken.

For the study of microscopic tissue, we categorized the fetuses in different groups according to their age.

Group	Age GroUP
1	5 – 15 weeks
2	16 – 25 weeks
3	26 – 35 weeks
4	36 – 42 weeks

III. Observation

The Observation Of Microscopic Study Is Shown In Table. The Four Criteria Are Studied As Follows:

1. Presence and absence of colloids
2. Presence f 'c ' cells
3. Position of 'c ' cells in follicles
4. Presence and absence of follicular structure

Our observation shows that the colloids are present in all the tissue slides.

The 'C' cells are present only 18 fetuses. The serial number and age groups are 4 (16-25 weeks), 8 (26-35 weeks), 10 (36-42 weeks)

IV. Discussion

This study shows that only 60% of thyroid gland has 'C' cells. In 5-15 weeks group, there were no 'C' cells present. In age group 16-25 weeks, 4 gland (50%) show 'C' cells amongst 8 were studied. In age group 26-35 weeks, 8 glands were studied, out of which 6 gland (75%) present 'C' cells in their structure , while in age group 36-42 weeks, 8 gland (80%) have 'C' cells among 10 studied egarding the position of 'C' cells the three positions are identified as follows:

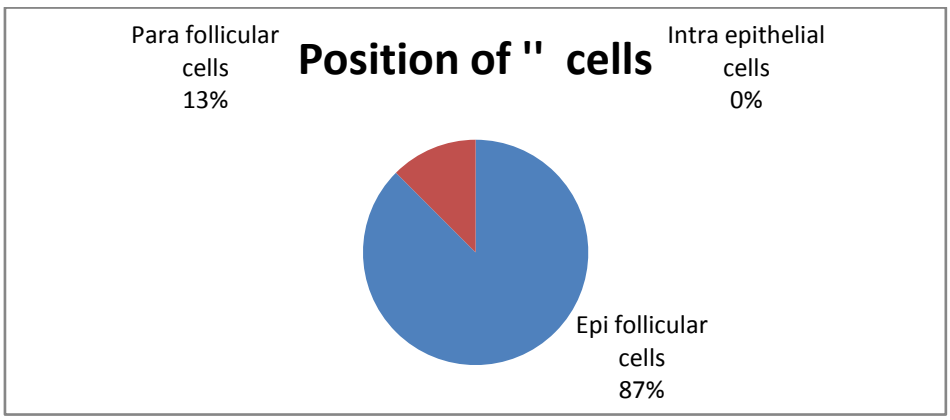
1. Epifollicular position
2. Para follicular position
3. Intraepithelial position

Among 18 fetuses only 12.5% have parafollicular position, rest 87.5% have Epifollicular position .The intra epithelial position of 'C' cells are not found.

S. No.	Age group	Foetus studied	Colloid present	'c' cells present	Position of 'c' cells	Follicular structure
1	1-15 weeks	1	Yes	Nil	Nil	Present
		2	Yes	Nil	Nil	Present
		3	Yes	Nil	Nil	Present
		4	Yes	Nil	Nil	Present
2	16-25 weeks	5	Yes	Nil	Nil	Present
		6	Yes	Yes	Para follicular	Present
		7	Yes	Yes	Epi follicular	Present
		8	Yes	Nil	Nil	Present
		9	Yes	Yes	Epi follicular	Present
		10	Yes	Nil	Nil	Present
		11	Yes	Nil	Nil	Present
		12	Yes	Yes	Epi follicular	Present
3	26-35 weeks	13	Yes	Yes	Epi follicular	Present
		14	Yes	Yes	Epi follicular	Present
		15	Yes	Yes	Para follicular	Present
		16	Yes	Yes	Epi follicular	Present
		17	Yes	Yes	Epi follicular	Present
		18	Yes	Nil	Nil	Present
		19	Yes	NIl	Nil	Present
		20	Yes	Yes	Epi follicular	Present
4	36-42 weeks	21	Yes	Yes	Epi follicular	Present
		22	Yes	Yes	Epi follicular	Present
		23	Yes	Yes	Epi follicular	Present
		24	Yes	Yes	Epi follicular	Present
		25	Yes	Yes	Epi follicular	Present
		26	Yes	Nil	Nil	Present
		27	Yes	Nil	Nil	Present
		28	Yes	Yes	Epi follicular	Present
		29	Yes	Yes	Epi follicular	Present
		30	Yes	Yes	Epi follicular	Present

Position of 'c' cells

Position	**'c' cell found**	**%age**
Epi follicular	14	87.5%
Para follicular	2	12.5%
Intra epithelial	0	0%



Age group	No. of foetus studied	'C' cells present
5-15 week	4	0 (0%)
16-25 week	8	4 (50%)
26-35 week	8	6 (75%)
36-42 week	10	8 (80%)

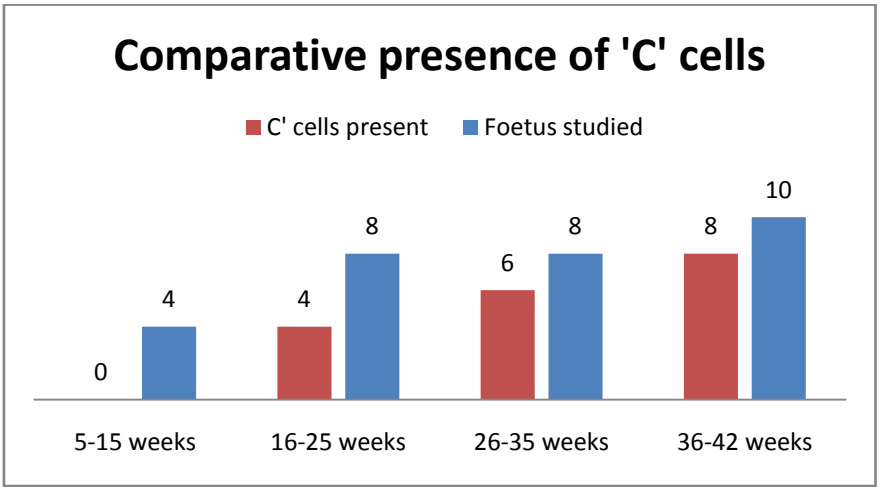


Figure 1. – Showing follicular structure of thyroid gland with colloid material (12 weeks).

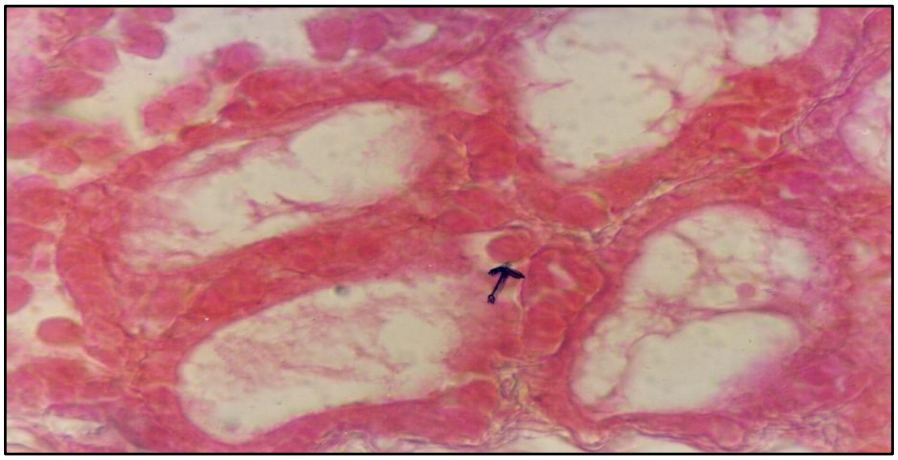


Figure 2. Showing 'C' cells in the thyroid gland microscopic structure (20 weeks).

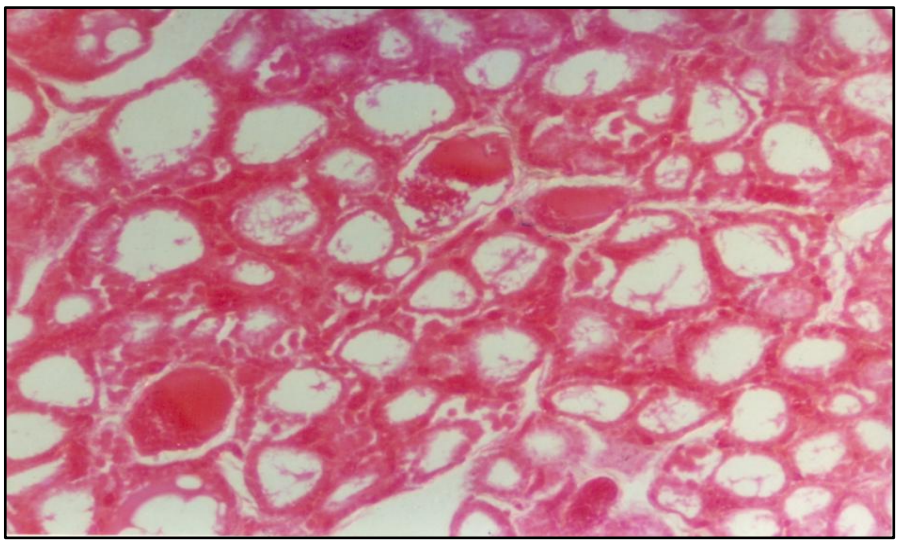


Figure 2. – Showing follicular structure of thyroid gland with colloid material.

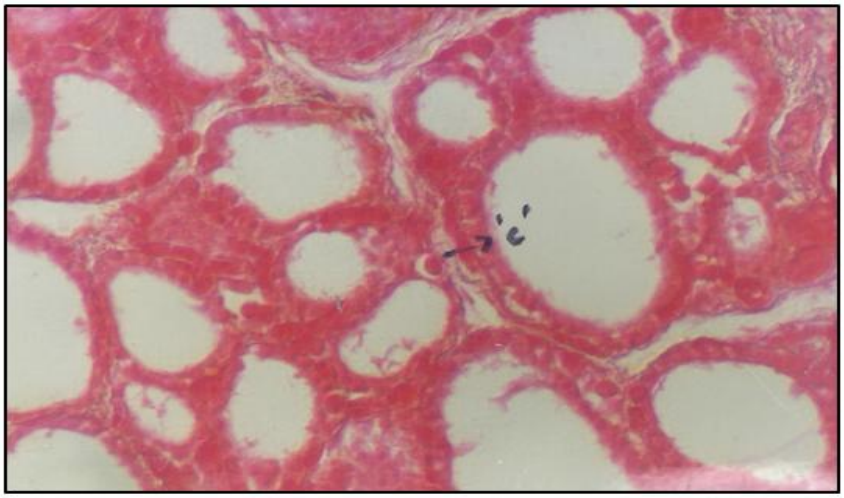


Figure 3. – Showing 'C' cells in the thyroid gland microscopic structure (22 weeks).

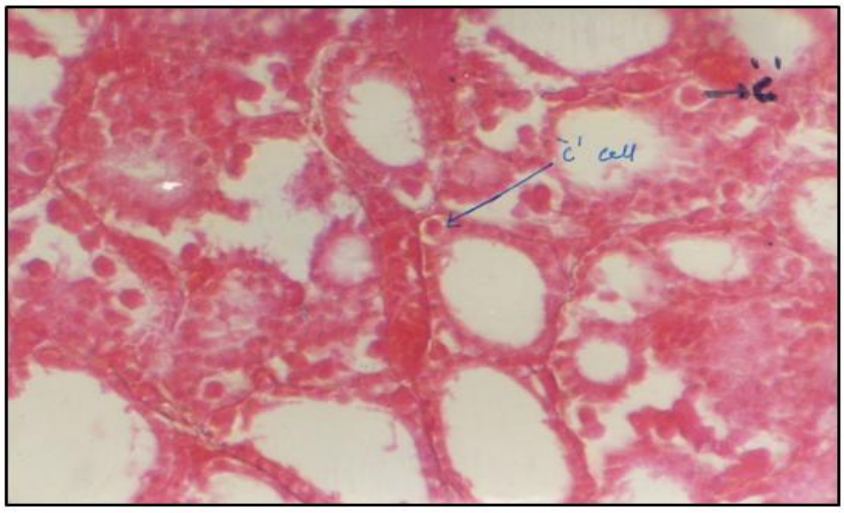


Figure 4. – Showing 'C' cells in the thyroid gland microscopic structure (40 weeks).

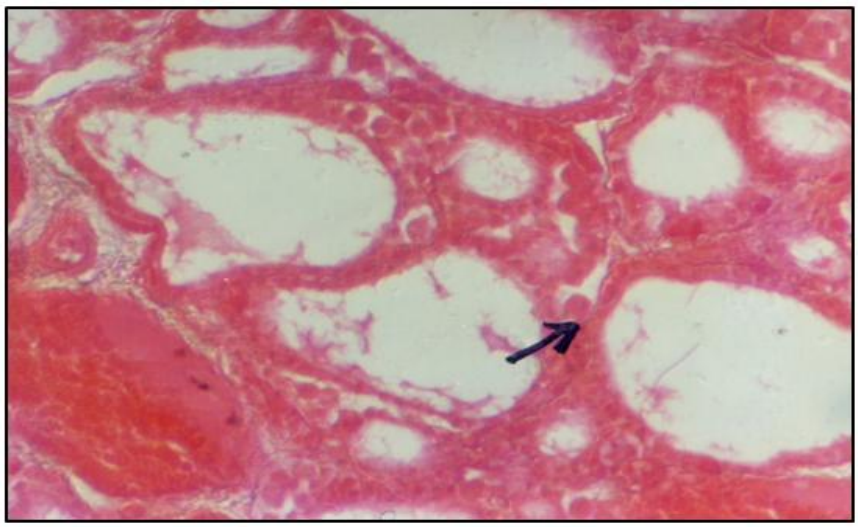


Figure 5. – Showing 'C' cells in the thyroid gland microscopic structure (26 weeks).

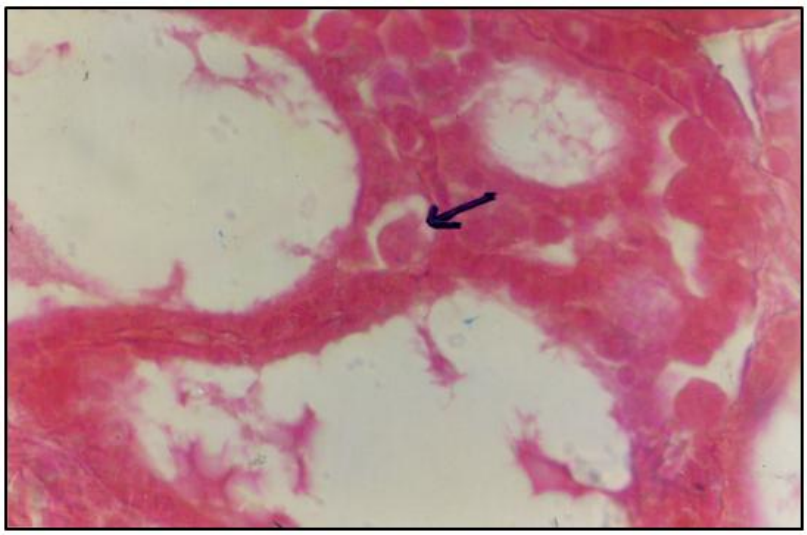


Figure 6. – Showing 'C' cells in the thyroid gland microscopic structure (21 weeks).

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