

MORPHOMETRY OF TESTISL. L. Sailaja¹, A. Vasanthi²**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: Testis 100 in number were collected from cadavers in anatomy department and from aborted fetuses in gynaecology & obstetrics department of Andhra Medical College. They are divided in to groups by age wise, weight and measurements of testes (Morphometric) were done and kept in tabular form compared with normal one. Previous literature were also observed and the maximum weight of testes found in our study is 15gm. The minimum weight of testes in our study is 3 mg and 3mm in length width and breadth and maximum length, width and breadth is 5cmX3cmX5cm. The data obtained shows reduction of parameters of testes. The descent of testes and any congenital abnormalities were also observed. Colour of testes and appearance were also observed. The weight and morphometric measurements of testes were found below the normal in this region. However the size and morphometric measurements were dependent on hormonal status and built of individual. But the built and status of individuals are average. The reduction of morphometric measurements were probable due to some other cause.

KEYWORDS: Morphometry, Testis, Secondary Sex Charecters, Evelopment, Weight, Age.

INTRODUCTION: The present study is to evaluate the status of testes in this area and comparing with normal ones. And Identification of abnormalities and alerting the epidemeologists and researchers to further evaluation.

Development of testes and secondary sexual characters development are very important in fertility. It is influenced by hormones, The secondary sexual characters and body stature intellectual activity depends on human development. Sex chromosomes play an important role in development of testes. Testes under goes various morphological, histological changes during prenatal and post natal period. More recently various experimental evidence had been added to the past knowledge.

The present study of morphometry of testes in various stages of human life can help in identifying abnormal pattern of development that reflect the secondary sexual charcters and fertility, which is very important in all stages of human life.

MATERIALS AND METHODS: This work was conducted at the department of Anatomy Andhra Medical college for a period of three years. Testes were collected from the aborted dead fetuses of the obstetrics and gynecology of different periods of gestations. Testes were collected from adult male cadavers of different age groups from anatomy department during routine dissection.

A total number of hundred testes were collected and studied by length, width, breadth, weight, prenatal collection of 50 testes were done only from obstetrics and gynaecology department, post natal testes 50 from anatomy department. 10% formalin was used as preservative. The materials used for dissection are scalpel, forceps, siscissors, tape and thread. Weight was measured by simple balance and Electronic balance. Compass angler were used for measurement of length, width, breadth. All testes and weight were kept in tabular form by age wise and the parameters were compared.

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RESULTS: Position of testes at different ages.

PRENATAL PERIOD:

Age-weeks	Abdominal	Inguinal	Neck of Scrotum	Scrotum
0-12 (4)	4	-	-	-
13-20 (10)	6	4	-	-
21-40 (36)	-	-	10	26
50	10	4	10	26

Table 1: Position of Testes in Prenatal Period

Total 50 testes in cadavers.

Position of testes in cadavers.

Age	Abdominal	Inguinal	Neck of Scrotum	Scrotal
Pre pubertal	-	-	-	4
Pubertal	-	-	-	2
Reproductive	-	-	-	20
Andro pausal	-	-	-	24
			Total	50

Table 2: Position of Testes in Cadavers

Above all are at same level on both sides. It indicates descent of testes on both sides is similar. In prenatal age group 0-12 weeks abdominal testes is found. Four testes on both sides in 13-20 weeks of age group. Abdominal testes is found in six testes and at inguinal level in four testes. In 21-40 weeks ten testes are found at neck of scrotum and twenty six testes are found at normal scrotal level. It is showing more tendency towards inguinal level at 13-20 weeks of age. More towards scrotal level at 21 to 40 weeks it is clearly evident. That testes descent is almost completed by term in post natal age group (All groups) the undescended testis is zero.

The colour of the testes was normal pink and surface is smooth in pre natal age group. Where as the surface of testes in post natal is smooth and colour is glistening pale white.

MORPHOMETRIC PARAMETERS: The macroscopic studies of testes revealed that the volume and weight of the testes vary with age, built and status of the hormones. The volume of the testes least is 1.5ml and maximum is 20 ml. the adult human testes in our study is 15gm In weight and 3.5 to 4.5 cm. in length and 2.3 cm in diameter where as normal weight is 22 gm. Plus or minus.

PARAMETERS OF PRENATAL TESTES:

Age in week	Right lxbxt	Left lxbxt	Weight	
0-12	3	3	3mg	3mg
13-20	7.5x4x3	7.5x4x3	90mg	90mg
21-40	9x5x3.5	9x5x3.75	110mg	110mg

Table 3: Measurement of Testes in Prenatal Period

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The parameters of testes in prenatal period 0-40 weeks vary in:

- 3 mm to 9 mm in length.
- 3 mm to 5 mm in breadth.
- 3 mm to 3.75 mm in thickness.

The length breadth thickness in prenatal age group 0-12 weeks is same 3mm. this corresponds with previous studies.

MORPHOMETRIC MESAUREMENTS OF TESTES IN CADAVERS:

AGE	RIGHT	LEFT
	lxbxt	lxbxt
PREPUBERTAL	3.5cmX1.5cmX2.4cm	3.5cmX1.5cmX2.4cm
PUBERTAL	4.0cmX2.0cmX2.9cm	4.0cmX2.0cmX2.9cm
REPRODUCTIVE	4.50cmX2.5cmX3.8cm	4.4cmX2.60cmX3.0cm
ANDROPASUAL	5cmX3cmX5cm	4.5cmX2.7cmX2.7cm

WEIGHT OF TESTES IN CADAVERS AVERAGES:

Age	Right	Left
Prepubertal	7.5gm	8 gm
Pubertal	11.5gm	11.5gm
Reproductive	14.75 gm	15gm
Andropasual	14.75 gm	15gm

The weight of the testes in cadavers (post natal) shows increase towards age advancement. The testes is more lobulated at reproductive period. The lobulated pattern of testes at andropasual age does not show significant change.

DISCUSSION: Gonadal ridge formation from primordial germ cells initiates the process of formation of testes or ovary.¹ It was documented for human, mouse, and rabbit. The gonadal ridge consists of distinct germinal epithelium. The indifferent gonad, latter differentiates into testes or ovary. Primary epithelial cords become seminiferous cords shortly after their separation from germinal epithelium.

The volume of testes is associated with testicular function,² it was observed in previous studies.

The transport of testes from it's original place of origin to it's final position of scrotum is called descent. During it's course it can be arrested at any place of transport is called as undescended testes. The individual variation of testes occurs with adult age.³ Previous studies described the volume of testes can be maintained even at advanced age.⁴ The same was observed in the present study. The volume of the testes in boreoeuthrian mammals (Small mammal) has very large testes.⁵ The meaning of testes is "witness" of virility.⁶

OBSERVATIONS: The length width and breath of testes is increased gradually to reproductive period after that it shows some static maintenance. But in the present study testes parameters doesn't shows much significant changes as age is advancing after puberty. This correlates with male potency for a

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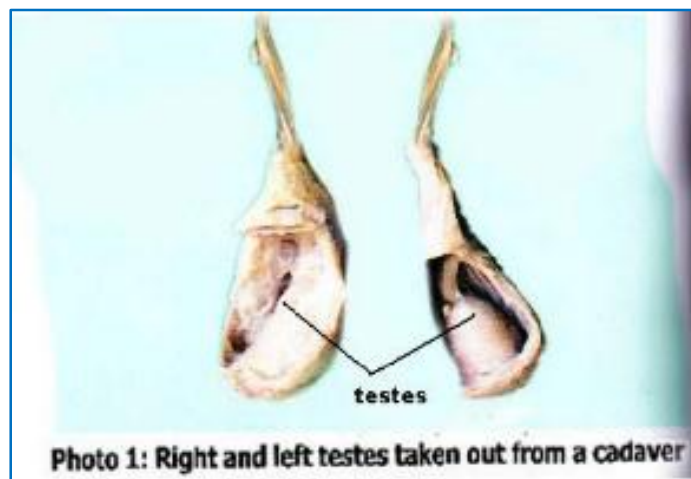
long period when compared with female. The testes reached maximum weight at reproductive period. Ther after no significant changes of weight in andropausal age.

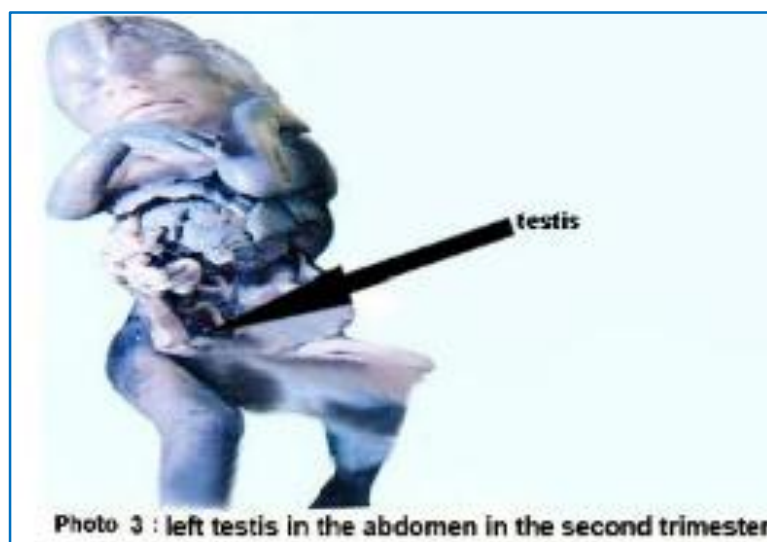
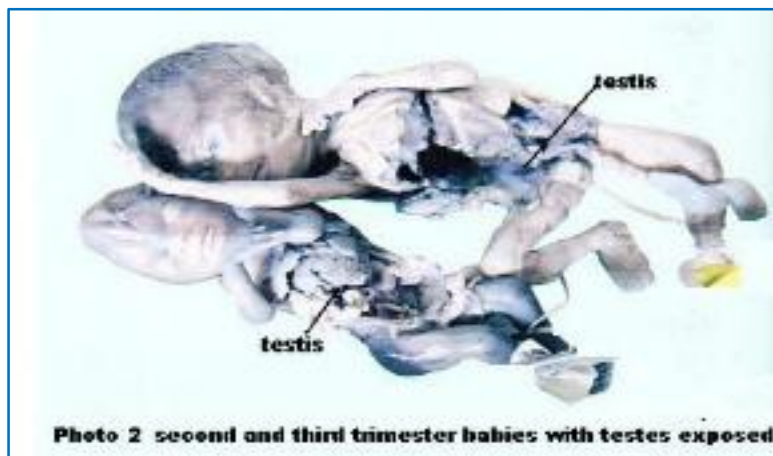
CONCLUSION: Previous Studies Done On Testes Are On Limited Group. But the present study focused on prenatal and cadavers shows that testicular abnormalities are zero in this region. But the average size and weight of testes is reduced than normal. In recent years may be due to changes of environment and life style is an alarming sign to the andrologists and epide-mologists due to industrialization. It needs further study and evidence.

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