INTRODUCTION

The vermiform appendix is a narrow blind tube or an appendage arising from the postero-medial wall of caecum. The word vermiform derived from the Latin word "vermiforma" means worm shaped or resembling worm, hence called 'vermiform'. Anatomically, it is one of the mobile viscera of abdomen with an average length of 6-9cms about 1cm longer in male than in female.

The appendix was probably first noted as early as the Egyptian civilization (3000 BC). Appendix was not found by Aristotle and Galen because they both dissected lower animals, which do not have appendices. Celsus, however, probably discovered the appendix because he was allowed by Caesar to dissect criminals. Leonardo da Vinci first depicted the appendix in anatomic drawings in 1492. In 1521, Jacopo Beregari da Capri, a professor of anatomy in Bologna, identified the appendix as an anatomic structure while Phillipe Verheyen give the term appendix vermiform in 1710.

Vermiform appendix performs some functions related to gastrointestinal tract, the main function being immunological. It has also been stated that vermiform appendix acts like a tonsil. As the tonsil guard's upper alimentary tract from bacteria, the vermiform appendix also guards the small intestine from bacteria present in the large intestine. The other functions of appendix are physiological, microbiological and biochemical.

The first authentic study of the position of appendix was conducted by Gladstone and Wakeley in 1924, who studied 3000 anatomic dissections. Previous to this, other authors had stated their belief, from observations at necropsy or operation, that the majority of appendixes are situated anteriorly, and that they are free and hang over the brim of the pelvis.

In the study conducted by Gladstone & Wakeley concluded that 69.2% were postcecal or retrocolic, 27.5% were pelvic lying on psoas major muscle near or hanging over the brim of the pelvis, 0.9% were anterior or pre-ileal, 0.5% were post-ileal, 1.86% were subcecal and 0.03% (one case) were ectopic.

So the positions of the vermiform appendix are as follows: (a) retro caecal and retro colic passes retro peritoneally behind the caecum and ascending colon, (b) pelvic the tip of appendix passes downwards and medially, crosses right pelvic brim, (c) splenic or ileal type tip of the appendix passes upwards and medially in front or behind the terminal part of the ileal (pre or post ileal) (d) subcaecal and paracolic lies below caecum and tip ascends by the side of the ascending colon, and (d) midinguinal very rare type and tip of the appendix is directed vertically downwards.

People of district Bannu, being in a far flung district of the province, face great hardships in consulting the surgeons for management of acute abdomen including acute appendicitis. Furthermore no such study has been conducted so far in this region to address such problem.

Objective of this study was to determine the different anatomical position of the vermiform appendix among people of District Bannu.
RESULTS

Five hundred people were evaluated in this study for the purpose to ascertain the position of appendix. Age ranges was 1-60 years.

The percentage of pelvic appendix was higher in younger age group that is 1-20 year of age while above this age the retrocecal type was common. The retrocecal are found in 285 (57%) cases, pelvic in 143 (28.6%) while pre and post ileal in 67 (13.4%) cases and the remainder 5 (1%) having ectopic position.

The Table 1 shows highest number of retrocecal position of vermiform appendix among people.

Figure 2 shows the frequency of position and percentage of vermiform appendix as well as number of cases. This shows that pelvic type is more common in younger age group up to 20 years of age.

DISCUSSION

In the present study, the retrocaecal position was highest (57%) followed by pelvic (28.6%) and post ileal (9.4%), pre-ileal (4.0%) and the subcaecal and ectopic were rarely found.

Table 1: Showing position-wise frequency of vermiform appendix.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Positions of appendix</th>
<th>Number of cases (n=500)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Retrocecal</td>
<td>285</td>
<td>57.0</td>
</tr>
<tr>
<td>2</td>
<td>Pelvic</td>
<td>143</td>
<td>28.6</td>
</tr>
<tr>
<td>3</td>
<td>Post-ileal</td>
<td>47</td>
<td>9.4</td>
</tr>
<tr>
<td>4</td>
<td>Pre-ileal</td>
<td>20</td>
<td>4.0</td>
</tr>
<tr>
<td>5</td>
<td>Para-cecical /ectopic</td>
<td>5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Table 2: Frequency of pelvic position of vermiform appendix.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Age in years</th>
<th>Pelvic</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-10</td>
<td>50</td>
<td>10.0</td>
</tr>
<tr>
<td>2</td>
<td>10-20</td>
<td>39</td>
<td>7.4</td>
</tr>
<tr>
<td>3</td>
<td>20-30</td>
<td>19</td>
<td>3.8</td>
</tr>
<tr>
<td>4</td>
<td>30-40</td>
<td>21</td>
<td>4.2</td>
</tr>
<tr>
<td>5</td>
<td>40-60</td>
<td>14</td>
<td>2.8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>143</td>
<td>28.6</td>
</tr>
</tbody>
</table>
experience of surgeons, pathologists and anatomists of the present day, but differs very markedly from the statistics, which have been published by older writers and quoted in many textbooks of Anatomy. The findings of the present study were similar to the findings made by Wakeley (retrocecal 60%, pelvic 30% and pre and post ileal), Maisel, Solanke and Gladstone and Wakeley where the retrocecal position was higher than the pelvic variety. The present study did not coincide with the study carried out in Gorgan Teaching Hospital by Golalipour et al.\(^{14,15}\) where pelvic variety was 33.3%, retrocecal 32.4%, preileal and subcecal were 12.8%. Katzarski and Dutta\(^\text{17}\) did a study on Ghanians where the pelvic variety was more and this can be explained by racial variation.

The pelvic or descending position of the appendix is the second most common position, and was found in 28.6% of this series. As a rule, the tip of the appendix is directed downwards on the psoas major muscle and according to its length may hang over the brim of the pelvis. In younger people this is the commonest variety because of caecal development which coincides with the study of Golalipour\(^\text{15}\) but he did not mention the cause. According to Katzarski and Dutta\(^\text{17}\) in Ghana medical journal in 1971, where the pelvic variety was 33.3%, retrocecal 32.4%, preileal and subcecal were 12.8%. Katzarski and Dutta\(^\text{17}\) did a study on Ghanians where the pelvic variety was more and this can be explained by racial variation.

The post-cecal or retro-colic positions of the appendix account for 57% (n=285) of the cases and constitute by far the most common site in this study. This is in accordance with the general experience of surgeons, pathologists and anatomists of the present day, but differs very markedly from the statistics, which have been published by older writers and quoted in many textbooks of Anatomy. The findings of the present study were similar to the findings made by Wakeley (retrocecal 60%, pelvic 30% and pre and post ileal) andMaisel, Solanke and Gladstone and Wakeley where the retrocecal position was higher than the pelvic variety. The present study did not coincide with the study carried out in Gorgan Teaching Hospital by Golalipour et al.\(^{14,15}\) where pelvic variety was 33.3%, retrocecal 32.4%, preileal and subcecal were 12.8%. Katzarski and Dutta\(^\text{17}\) did a study on Ghanians where the pelvic variety was more and this can be explained by racial variation.

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The post-cecal position is rare 9.4% so only 47 cases being observed in the 500 cases examined. This is the commonest position, according to the teaching and writings of the late Sir Frederick Treves, and still quoted in most of the standard textbooks of anatomy.
The anterior or pre-ileal position is very rare (4%) in which the distal extremity of the appendix is directed upwards and forwards over the terminal part of the ileum. There is a long meso-appendix frequently extending up to the tip of the organ and there is often an ileo-caecal fold.

The sub-caecal position of appendix, in which the appendix is found beneath the caput caeci, was present in 1% of the cases, similar to study done in Bangladesh by Paul et al.16 The appendix lies in the iliac fossa and the peritoneal covering of that fossa alone separates the organ from the iliacus muscle. The appendix with its mesentery is twisted in a clockwise direction from left to right, and frequently its tip is directed upwards. Should an ileo-caecal fold be present, it may completely cover the root of the appendix.

Ectopic positions of the appendix may be present. In one case of our study the appendix was in the left iliac fossa because of situs inversus. In one case the appendix was pre-hepatic in position, while in one it was lying with the caecum in the umbilical region because of incomplete rotation of gut.

CONCLUSION

Retrocecal appendix is more common than other sites but decrease with increasing age. However to establish a proper data of position of appendix in human beings, further studies are necessary by using larger sample size from different age and sex groups.

REFERENCES


8. Wakeley CPG. The position of the vermiform appendix as ascertained by an analysis of 10,000 cases. J Anat 1933; 67: 277-83.


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