Estimation of normal spleen dimensions Using Ultra Sound
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Abstract
Spleen dimensions are so sensitive because it verifies existence of variety of disorders. The purpose of this study was to estimate the normal dimensions of the spleen among the selected sample at Taif city. This study considered as a prospective, analytical, and a descriptive study that deal with the abdominal ultrasound (spleen). The data collected from King Abdul Aziz Specialized Hospital (KAASH), in March 2018 at 9 am to 2 pm every Monday weekly. Sample frame was comprised 50 patients confirmed normal spleen findings by ultrasound. Selection of participant was done through simple random sampling concerned with spleen. The data analyzed by Statistical Package for the Social Sciences SPSS program. The main results of the study found that the mean length of the spleen among all age groups was 10.07cm, the mean width was 6cm, and the depth was 5.1cm. There was no significance difference for the normal spleen measurements between both genders. More studies needed to establish baseline for spleen dimensions measurement with large population volume included in the future studies.

Keywords: Spleen dimensions, Taif city, (spleen), SPSS program.

Original Research Article

INTRODUCTION
Estimation of spleen size is imperative since numerous disarranges with broadening (splenomegaly) or diminishment of the spleen. Foundation of typical values of the spleen in schedule sonographic examinations can serve as a base line for conclusion of endemic diseases within the region related with changes in its size such as lymphoma, sickle cell disease and tropical splenomegaly disorder counting intestinal sickness. The basic capacities performed by the spleen too requires its sonographic biometry. The morphological characterization of the spleen is one of the numerous parameters that help in recognizing splenic clutters and systemic contaminations, infectious and carcinomatous pathologies. Perpetually the total characterization of the pathologic process may require morphological appraisal of anatomical structures and research facility reports. In any case, there are numerous conditions where organomegaly may be the only feature on ultrasonography like splenomegaly in intestinal sickness. On the opposite, clinically substantial spleen may not be necrotic. Pushed down spleen due to subdiaphragmatic pathology, visceroptosis and discernable spleen in 10% to 15% of typical children are a many cases of substantial spleen without any clinical centrality [1]. Clinical evaluation of changes in visceral organ measure is troublesome and untrustworthy [2].

In numerous nations with endemic schistosomiasis, abdominal ultrasonography is utilized for organometric examinations of the spleen and liver and has been appeared to be dependable and reproducible [3]. In Nigeria as well, ultrasonography can be utilized in epidemiological considers of numerous endemic illnesses like chronic malaria and typhoid fever, given we have standardizing information. So distant we do not have any standardizing information on spleen size in a large population of school age children from our nation. Organ volumes gotten by utilizing different organ measurements and body surface ranges are as now utilized in relation with body parameters to portray the typical measurements and to estimate the degree of pathologic deviations from typical. In any case, these volume estimation producers are time devouring and illogical in day by day utilize. In this manner, utilize of length, width and or antero-posterior measurements appears more practical for reason of setting up normograms. Any different data, like age, physique weight and peak which are without difficulty available can be blended with the above measurements when necessary.

Ultrasound measurement of splenic length is general practice, but it is not recognized how nicely this represents the genuine dimension of the spleen. Previous studies, the use of a mixture of measurements from in vivo and resected spleens, had
been challenge to error because of changes in splenic measurement [5].

OBJECTIVES

General Objectives

- To show the normal measurement of the spleen among Saudi population.
- To put standard reference measurement of the normal spleen among Saudi population.

Specific Objectives

- To measure the length of the spleen.
- To measure the width of the spleen.
- To measure the depth of the spleen.

MATERIAL AND METHODS

A prospective, analytical, descriptive learn about deal with the belly ultrasound (spleen). The motive of this study was to measure the ordinary dimensions of the spleen among the selected pattern at Taif city. The data gathered from King Abdul Aziz Specialized Hospital (KAASH), from 9 am- two pm every Monday weekly. Sample body was comprised 50 sufferers validated everyday spleen findings were scanned through ultrasound. Selection of participation was executed via easy random sampling concerned with spleen. The patient examined in a fasting state, imposing dietary restrictions (avoidance of gas-producing foods), the water contrast method is also very appropriate for demonstrating the wall of hollow organs such as (the bladder, gall bladder, and stomach), and distinct positioning [6]. Usually the examination is carried out with the patient in supine position. Additional scans in the lateral decubitus and susceptible positions have been essential and useful in some situations, in particular in obese patients or sufferers with skeletal deformations [7]. The vicinity of interest in the abdomen used to be completely evaluated in at least two scanning planes. Surveys were used to set correct imaging techniques, to rule out pathologies, and to recognize any ordinary editions [8]. The researcher used Shimadzu SDU- 350XL (Japan) ultrasound machine with multi-frequency curvilinear probe (3.5–5 MHz) which has variable focal zone and frequency capability, and KIAXIN (China) with two probes curvilinear multi-frequency (2 MHz–5 MHz) and linear high frequency 6.5 MHz probe. The facts have been analyzed by way of SPSS via the use of the a number data computerize methods and introduced in dummy tables and figures. Especial consideration was given to the proper confidentiality and anonymity of all lookup participants. Anonymity used to be carried out by means of the usage of numbers for every lookup participant that would furnish link between the data collected and the participants. In addition confidentiality used to be ensured by making the accumulated facts handy only to the researchers and the advisor radiologist.

The results

Table 1: The age group 20 -30 years and the normal measurement of the spleen.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Length mean</th>
<th>Width mean</th>
<th>Depth mean</th>
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<tbody>
<tr>
<td>20-30</td>
<td>11.3</td>
<td>6</td>
<td>5.5</td>
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</tbody>
</table>

Fig-1: Diagram shows how to measure spleen length, width, and depth (in centimeters) on longitudinal and transverse planes

Fig-1: The gender distribution

Fig-2: The age distribution
Fig-3: The age group 20-30 years and the normal measurement of the spleen

Table-2: The age group 31-40 years and the normal measurement of the spleen

<table>
<thead>
<tr>
<th>Age group</th>
<th>Length mean</th>
<th>Width mean</th>
<th>Depth mean</th>
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<tbody>
<tr>
<td>31-40</td>
<td>10.7</td>
<td>6</td>
<td>5.1</td>
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Fig-4: The age group 31-40 years and the normal measurement of the spleen

Table-3: The age group 41-50 years and the normal measurement of the spleen

<table>
<thead>
<tr>
<th>Age group</th>
<th>Length mean</th>
<th>Width mean</th>
<th>Depth mean</th>
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<tbody>
<tr>
<td>41-50</td>
<td>11.2</td>
<td>5.8</td>
<td>5.8</td>
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</table>

Fig-5: The age group 41-50 years and the normal measurement of the spleen
**DISCUSSION**

Diagnostic imaging methods are most reliable to scientific examination in determining the dimension of organs [9, 10]. Sonography is one of the most common imaging techniques, which are used in movements practice [11].

In the current study, the average length of the spleen was once 11.2 ±0.91 cm. comparatively, in a preceding find out about finished by Spielmann et al., [12], the common size of the spleen used to be found to be 11.4 ± 1.7 cm which was once the identical as that discovered in our study. The size of the spleen obtained by Konus et al., [13] used to be barely greater than that discovered in our study. But the common length of the spleen acquired by using Niederau et al., [14] used to be comparable to that observed in our current study.

In our study, the average width of the spleen used to be 5.9±0.59cm. The common width of the spleen obtained through Spielmann et al., [12] was once 5.0 ± 0.8 cm.

To the exceptional of our knowledge, our study aimed to look into the ordinary limits of liver and spleen is one of the few studies, which presents records from the Taif metropolis population. But, there are a few barriers to this study, as our learn about population variety used to be very less. The statistics obtained by way of us is now not comparable to that of the previous research which have been essentially from the overseas population. So, a larger learn about is required, which would possibly improve the precision of our estimates. We hope that this find out about contributes to the every day exercise in radiology clinics.

**CONCLUSION**

The statistics got by way of us is now not comparable to that of the previous studies which had been basically from the overseas population, age distribution, and facts volume. So, a larger find out about is required, which may improve the precision of our estimates. We hope that this study contributes to the each day exercise in radiology clinics.

**REFERENCES**

