

## Ultrasonography Guided Biopsy And Their Complications:

Dr Desmond David Joachim Dcuz<sup>1</sup>, Dr Shishirkumar C Naik<sup>2</sup>(Corresponding Author)

1. Associate Professor, Department of Radiodiagnosis, Kanachur Institute of Medical Sciences, Mangalore.
2. Associate Professor, Department of Anatomy, JNUIMSRC, Jaipur [former employee (Associate Professor, department of Anatomy) of Kanachur Institute of Medical Sciences, Mangalore].  
(Corresponding Author).

### Abstract

*Ultrasonography is right now the choice of immediate diagnostics and USG is one tool which is available throughout the length and breadth of the country. Ultrasonography guided biopsy procedure is practised throughout our country and is quiet reliable also. The biopsy procedure requires good set of skills and in the hands of a trained interventional radiologist the procedure is quiet successful. The complications are known and have been reported rarely but a complete dedicated study is the need of the hour. So this study puts in an effort to find the complications that we face during if any and after the procedure.*

**Keywords:** USG, Biopsy, Complications, Cross-sectional.

### INTRODUCTION:

Ultrasound guided biopsy or ultrasound interventional biopsy is performed in many diseases like prostate carcinoma, breast carcinoma, pancreatitis, AIDS, biopsy of renal transplant etc. (1). Sites where interventional biopsy is performed thyroid, non-thyroid neck, breast, liver, lymph nodes, lung, gastrointestinal tract, Mediastinum and pancreatic mass. Ultrasound was introduced in all fields of medicine in the sixties. Diagnostic Ultrasound, first World Congress was held in Vienna in 1969 reporting ultrasound guided interventions. Erlyne reported A-mode guided percutaneous renal biopsy using an intravenous pyelogram to localize the kidney (2). Recent clinical practice is revolutionised by the existence of ultrasound guided interventions. Ultrasound scanner uses high frequency sound waves which will reflect back from internal organs to make an image. Then this image is utilized to guide the needle to right place. A piece of tissue is collected. The procedure of taking the piece of tissue for analysing is known as biopsy. Thus Ultrasound interventional biopsy is performed. Ultrasound guided interventions are thought to be safe and accurate as it is using sound waves. Therefore lack of ionizing radiation and visibility in multi-axial, oblique and sagittal planes is advantageous (3). Advantages of ultrasound guided interventions include an unsurpassed sharpness of image taken and details of visual display. This technique is simple easy for practical approaches (2).

The associated complications of renal biopsy can be hematoma, profuse bleeding and rarely death. Perianal hematomas are without clinical significance. Ultrasound-guided percutaneous core needle biopsy (USPCB) is an accurate, safe, and widely accepted technique for the tissue diagnosis of various lesions of the abdominal viscera(4). There are articles describing techniques and complications of ultrasound guided interventions. There is lot to search about incidence of complications caused by ultrasound guided interventions.

**Aims and Objectives:**

To study the complications faced during the USG guided biopsy.

**Materials and Methods:**

This study was done in the Department of Radio-diagnosis, Kanachur Institute of Medical Sciences, Mangalore.

This study was done from Jan 2019 to Sept 2020.

This is a cross-sectional study. Thirty cases were included in the study.

**Inclusion Criteria:**

Any diagnosis made by USG previously was posted.

**Exclusion Criteria:**

Patients undergoing chemo and immune therapy.

Patients with blood coagulation disorders.

Patients on blood thinners.

**Statistical Analysis:** Only descriptive statistics.

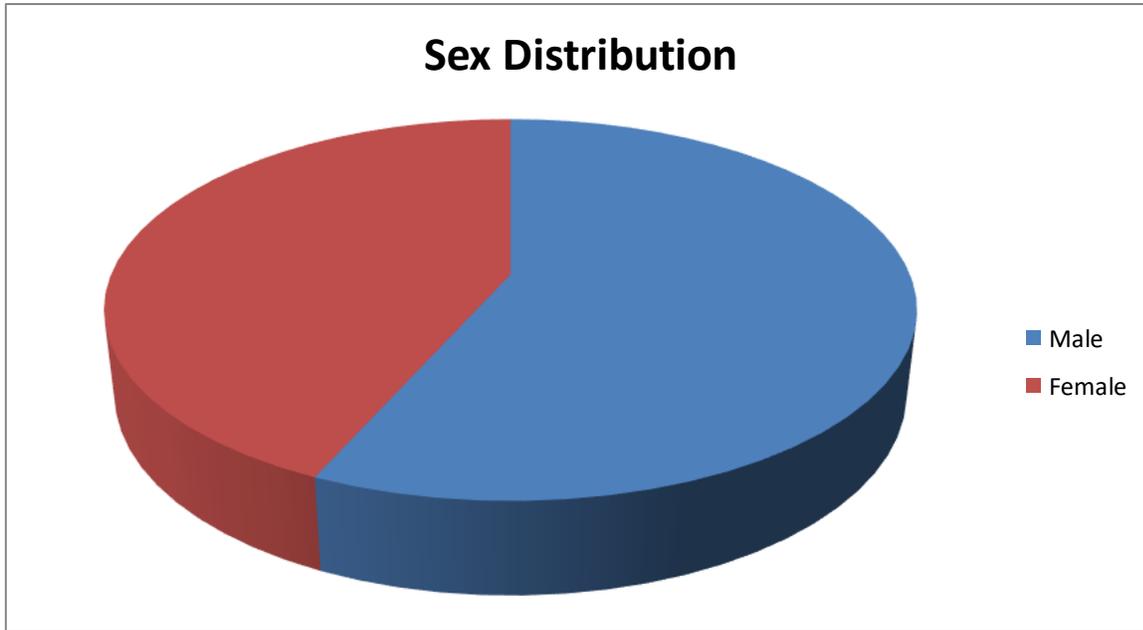
**Procedure:**

After taking all necessary aseptic precautions the mass/area of interest was first screened using the convex probe and then the mass was brought to the centre of the screen by adjusting the probe transversely. When the image is centred the probe is rotated vertically and then the mass is brought to the centre this time by adjusting the probe vertically. The mass or the area of interest should be in the centre when the probe is rotated. The depth of the area of interest should be measured so as to pick up the right needle. After taking necessary precautions the area is marked and then the needle is inserted and now the probe is placed and adjusted a bit slantly so that the needle can be focused.

**Results:****Table 1: Age Distribution:**

30-40 years	07
41-50 years	16
51-60 years	02
61-70 years	05

**Table 2: Sex Distribution:**



**Table 3: Biopsy Areas:**

<b>Liver</b>	<b>14</b>
<b>Kidney</b>	<b>03</b>
<b>Pancreas</b>	<b>02</b>
<b>Lymphnode</b>	<b>09</b>
<b>Adrenal</b>	<b>01</b>
<b>Other diffuse masses</b>	<b>01</b>

**Table 4: Complications:**

<b>Hemorrhage local</b>	<b>03 (All 3 were from Liver)</b>
<b>Intra peritoneal</b>	<b>01 (Liver)</b>
<b>Mass rupture</b>	<b>01 (Hepatoma)</b>
<b>Inadequate material so repeated procedure</b>	<b>04 (2 were from pancreas, 1 from adrenal and 1</b>

	<b>from lymph node)</b>
<b>Pain</b>	<b>07 (3-kidney, 1-adrenal, 1- other diffuse mass, 1 – liver, 1- pancreas)</b>
<b>Fever suggestive of sepsis</b>	<b>01 (Adrenal)</b>

**Table 5: Management**

<b>Antibiotics</b>	<b>30</b>
<b>Antipyretics</b>	<b>04</b>
<b>Analgesics</b>	<b>30</b>
<b>Surgery</b>	<b>01</b>
<b>Transfusion</b>	<b>03</b>
<b>Transfusion and Surgery</b>	<b>01</b>

**Discussion:**

This is the study centred on post biopsy complications. The post biopsy complications are much higher than any other technique. Reason for biopsy complications could be due to difficult needle coordination between radiologists and clinician, needle guide reduces sliding of the ultrasound transducer on gel.(5) Complications are categorized into two major and minor depending on the need for intervention (need for an intervention such as blood transfusion or an invasive radiologic or surgical procedure, severe hypotension, acute renal obstruction, renal failure, septicemia, or death) or not (severe flank pain, gross hematuria, and/or perinephric hematoma spontaneously resolving) respectively (6). Pomabas et al concluded that major complications are more common in patients with increased aPTT and lower Hgb level(6). There are studies discussing about the minor complications of the usg guided biopsy and major complications related to specific organs. This study was taken up to discuss all post biopsy complications under one head. Prasad et al (2015) did a study showing decrease in Post biopsy complications using needle guide in usg guided percutaneous renal biopsy (5). Salam et.al (2019) did study showing complications of usg guided liver biopsy (7). Azmat et al(2007) did a study discussing bleeding complications post ultrasound guided renal biopsy. Stated that Percutaneous kidney biopsy is a relatively safe procedure, as complication rates of the procedure are low.(8) Nong et al (2015) found that Usg guided biopsy helps in diagnosing AIDS complications, but still it causes several infectious complications occurring due to USG guided biopsy.(1) Complications in usg guided abdominal lesions done by Nyman et al. They described that complications resulting from biopsy can be reduced by decreasing repeat procedures. Transrectal biopsy complications noted were haemorrhagic (75.3%), infections (19%), Haematuria(56%), Urinary tract infection (9.2%), Sepsis(9.2%) (9). We found that the incidence of a

serious infection after ultrasound-guided intervention is low. Nearly all patients with an infectious complication improved on antibiotics alone. Radiologists can use these data to provide more accurate information to patients when asking for consent before procedures and to reassure their patients.

### **Conclusion:**

USG guided biopsy is supposed to be one of the safest procedures in an experienced hand. Though the complications are rare but can be successfully managed. Prompt recognition and frank treatment is needed.

### **Authors Role:**

Dr Desmond David Joachim Dcuz: Chief investigator.

Dr Shishirkumar C Naik: Research methodology, compiling of data and investigator.

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