

Case report of rare tissue injury and left arm dislocation after incorrect blood pressure measurement during clinical practice

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ABSTRACT

In midwifery education based on theoretical and practical foundations, students encounter midwifery profession education which based on for the first time in the Basic Clinical Skills in Midwifery Course. The aim of the Basic Clinical Skills in Midwifery Course is to help students understand the basic philosophy of midwifery and the role of the midwife in the health system, and to provide the student with knowledge, skills and attitudes about the basic concepts, principles and methods in midwifery care. In the Basic Clinical Skills in Midwifery Course, students are offered learning methods that will enable them to develop behaviors in the cognitive, affective and psychomotor domains. In this context, the course is carried out in skill development laboratories and clinical environments, after the lecturer in the classroom explains the basic concepts, the health system and midwifery, the protection and development of health, the fulfillment of physiological care needs, and the demonstration of the skills related to the psychomotor domain. Clinical practices are an indispensable element of midwifery education. The Midwifery Basic Clinical Skills Course has a very important place in clinical skills training, as students experience the hospital environment for the first time in their education life and experience midwifery practices for the first time on real patients. The aim here is to discuss a case that can be experienced after the correct application of vital sign measurement techniques and erroneous measurement.

Keywords: Blood pressure, clinical practice, erroneous measurement, measurement technique, midwifery student, skills training, vital signs

Vital signs (body temperature, pulse, blood pressure, respiration) reflecting the physiological state of the body provides information about the evaluation of the individual. Accurate evaluation of vital signs and making necessary interventions are essential elements of health care. Blood pressure measurement, which evaluates one of the vital signs, can be an indicator of serious health problems by being affected by

many factors. Factors affecting blood pressure are: gender, ethnicity, sympathetic stimulation, daily life, medications, exercise, weight, diet, smoking [1]. For the measurement of blood pressure, firstly, the right tool should be selected for the individual. It can be measured invasively or noninvasively. In non-invasive blood pressure measurement; stethoscope and sphygmomanometer are used. In addition to the device se-

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lection in measurement, correct region, correct technique and correct interpretation according to the time of hearing the sounds are important. Brachial artery or popliteal artery is used for blood pressure measurement. Usually, if the person does not have a special condition such as mastectomy or loss of arm, measurement is made using the brachial artery [2].

The steps to be considered in blood pressure measurement are briefly as follows:

Exercise, fatigue, eating, smoking, etc. factors should be considered. The measuring arm should be comfortable and clothes should not be tight. During the measurement, information should be given and the person should be asked not to talk, there should be no noise in the environment. The arm should be vertical, level with the apex of the heart, and supported from below with the palm facing up. After feeling the brachial artery, the cuff is wrapped around the arm, 2.5-5 cm above the palpable area and the connecting tube up. It is important that the individual's brachial artery and the artery mark on the cuff should be in line and the cuff should be completely loose [2, 3]. Once the brachial artery has been identified, place the earpiece of the stethoscope over the brachial artery, if the ear receiver. The puvav is taken into the palm of the hand and closed by turning the adjustment knob towards ourselves using the thumb and index finger. While holding the stethoscope over the brachial artery with one hand, with the other hand, inflate the puv regularly and rapidly by 30 mmHg above the individual's

previous systolic blood pressure. The hood is turned to the far side and the cuff is emptied slowly, with a 2-3 mmHg second decrease in the air evacuation rate. Too fast or slow emptying of the cuff can cause an error. The first sound heard when the cuff air is emptied is systolic blood pressure, and the closest value to the arrow when the sounds disappear is diastolic blood pressure. After that, the air is completely evacuated [2-4]. If the measurement is to be repeated, it is waited for 30-60 seconds [4]. If a measurement is to be made on the same arm, at least two minutes should be waited between both measurements [5]. Twenty-thirty minutes of the patient after the activity; in the resting state, blood pressure should be measured five minutes later [6, 7]. It is important to measure blood pressure in accordance with the instructions as stated above. Failure to follow these instructions may result in problems. In this article, a case of left arm tissue injury and dislocation after erroneous blood pressure measurement, which is rare during clinical practice, is presented. The aim is to report the case that occurred after blood pressure erroneous measurement during clinical applications and to review the literature.

CASE PRESENTATION

A 21-year-old female patient presented with complaints of pain and numbness in the left arm. In the story of a second-year midwifery student, who was 69



Fig. 1. Left arm CT image.

kg, 1.65 cm tall, and had a body mass index of 25.3 kg/m², who did not smoke or use alcohol, it was learned that they had practiced blood pressure measurement with their classmates within the scope of the clinical training program, and that blood pressure was measured on the same arm many times in succession. It could not be learned whether the blood pressure measurement was made at the appropriate pressure and time. As a result of the patient's application to the emergency service; there was no pathology in her physical examination and unidirectional left humerus and bilateral left elbow anteroposterior radiographs. Due to the absence of regression in the patient's complaints and the presence of anterolateral edema, the left arm and elbow were evaluated by computed tomography (CT) imaging by the emergency room doctor. CT reveals pain and soft tissue trauma in the left elbow. The left arm was fixed with a long arm splint and rest for ten days was recommended. Due to the absence of regression in his complaints during the ten day rest period, the patient was admitted to the orthopedics and traumatology outpatient clinic, and left arm dislocation was suspected, and the diagnosis was confirmed by one-sided left arm radiography (Fig. 1). With the appropriate maneuver, the humeral joint space was placed and the necessary interventions performed on the patient. He was discharged after some physical therapy exercises were recommended.

DISCUSSION

Factors such as the fact that patients have different characteristics due to their illness, the severity of their general condition, and that some patients do not volunteer to take part in the learning experience of the students lead to the fact that not all students have equal learning opportunities in the clinical practice environment and have difficulties in the clinical practice process. In addition, the fear of making mistakes in students caused by practicing on real individuals causes students to experience anxiety, and anxiety can prevent students from reflecting their knowledge and skills to real patient care [8-10]. Ensuring that students perform their practices by paying attention to the values and rights of patients during clinical practices is extremely important in terms of ensuring patient safety. For these reasons, the use of skill laboratories

is becoming increasingly important in the development of students' clinical skills. It is aimed to better prepare students for clinical practice by observing and practicing clinical skills in skill laboratories, by using traditional tools such as models and teaching methods such as demonstration and role-playing [11-13]. Due to the fact that the practice courses given in the clinical skills laboratory during the pandemic period cannot be conducted face to face, it is seen that the students' practice skills are lacking and their sense of self-confidence cannot be created. For this reason, it was observed that the students made mistakes in the vital sign measurements they made on themselves. In this context, it is seen how important the clinical application laboratory is in the clinical application period. In our case, left arm joint dislocation developed after an incorrect measurement. Elbow joint dislocation is the second most common dislocation of the large joint after the shoulder joint. Posterolateral dislocation often occurs with overloading and forcing the forearm to right or left rotation with excessive pressure. Dislocations are often not accompanied by fractures and are referred to as simple dislocations. Widespread pain, edema and limitation of movement are the main findings in the patient. Diagnosis can be made by radiography of the elbow, CT can be used for further examination. In simple dislocations, intervention with closed reduction followed by two weeks of stability is usually sufficient. There is a need for surgical treatment in complex, recurrent or unreplaceable dislocations that rarely develop [14]. No study similar to our case was found in the literature. Therefore, a comparison could not be made regarding the case.

CONCLUSION

Human life is very important and in this case, the student was damaged during peer education due to the wrong measurement technique. This mistake may also occur in the first clinical practice when confronted with the patient. As a result of the wrong follow-up of vital signs, which is of great importance during patient follow-up, it is revealed that the patient's treatment will be planned incorrectly, as well as the result of harming the patient due to incorrect application. In this context, laboratory practice of basic clinical skills given before the first clinical experience during mid-

wifery education is of great importance. There is a lack of literature evidence due to the fact that this situation is very rare in clinical skills education of blood pressure measurement.

Authors' Contribution

Study Conception: ÖEK; Study Design: ÖEK; Supervision: ÖEK, YDA; Funding: N/A; Materials: N/A; Data Collection and/or Processing: : ÖEK, YDA; Statistical Analysis and/or Data Interpretation: ÖEK, YDA; Literature Review: ÖEK, YDA; Manuscript Preparation: ÖEK, YDA and Critical Review: ÖEK, YDA.

Informed Consent

Written informed consent was obtained from the patient for publication of this case and any accompanying images or data.

Conflict of interest

The authors disclosed no conflict of interest during the preparation or publication of this manuscript.

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