The Study of Defects of Medical Documentation in Formulation and Confirmation of Diagnosis in Patients with Injuries of Ligaments

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ABSTRACT

Any medical specialist in trauma, employed as a forensic medical expert, has to deal with crimes against life, health, freedom and dignity, responsibility for which is provided by the criminal code of Russian Federation. The most frequent kind of a forensic medical examination is an examination of victims to determine the severity of the injury. The examiner should assess the data from medical documents critically, as the duration of treatment of the victim may be caused not only by the nature of the injury, but also by the number of accompanying diseases. The analysis of the experts' reports in the amount of 237 examples which were submitted to the expert - traumatologist for the period from September till December 2013 at the Department of forensic medical examination of bodily injury of the Department examination of the victims, defendants and other persons of the state health budget Institution of Moscow Bureau of forensic medical examination of the Health Department of Moscow» was done. All these examinations were under the question about the diagnosis determined that required of the additional consultation of the trauma specialist to confirm or disprove the diagnosis in determining the extent of damage to health of a patient. As the analysis of the damage revealed, the most part (that is about 205 cases (86.3%) was the damage of the ligaments of various localization. The detailed analysis of expertise of the damage of acrobaleno-clavicle joint, knee joint, and ankle joint was done. The main mistakes in the formulation of diagnosis were revealed, the ways of their elimination were defined, and the data in the literature with the description of the main characteristics of the diagnosis of the ligaments damage of the localizations specified were researched. The analysis of the defects in the medical records done by doctors-traumatologists in formulation and confirmation of diagnosis of patients with damaged ligaments acrobaleno-clavicle, knee and ankle joints for the determining of the severity of injury showed the following: there was no the one approach (algorithm) to the documentation of bodily injuries by the clinical doctors and no standards in their description and researching of capsular ligament joints. All this requires more closely interaction between forensic service and practical health care in the elaboration of appropriate standards for evaluation of patients with this pathology.

Keywords: medical examination, capsule ligaments, damage to health.

Any medical specialist in trauma, employed as a forensic medical expert, has to deal with crimes against life, health, freedom and dignity, responsibility for which is provided by the criminal code of Russian Federation. The most frequent kind of a forensic medical examination is an examination of victims to determine the severity of the injury. During the forensic medical examination of real patients about the severity of the bodily injuries, the expert-traumatologist is obliged to answer the following questions: what kind of injury; the duration of treatment is caused by this trauma or not?

But it is necessary to underline that the expert must assess the value of the datas from medical records critically, because of other factors (such as related diseases) can cause the duration of treatment except of the trauma itself. But on the other side, there are cases when the patient refuses to get a sick leave and wish to go to work ahead of treatment time. In any case it is important to assess the duration of disease and its severity on the base of real facts.

The analysis of the experts' reports in the amount of 237 examples which were submitted to the expert - traumatologist for the period from September till December 2013 at the Department of forensic medical examination of bodily injury of the Department examination of the victims, defendants and other persons of the state health budget Institution of Moscow Bureau of forensic medical examination of the Health Department of Moscow» was done. All these examinations were under the question about the diagnosis determined that required of the additional consultation of the trauma specialist to confirm or disprove the diagnosis in determining the extent of damage to health of a patient. As a result of the investigation of the injuries 'reasons, it was found the following: among all examinations under the research 151 cases were caused by traffic accident (among these ones 114 – as pedestrians, 37 – as drivers); 56 cases – criminal accidents; 30 – others (fallings, industrial accidents). The analysis of the injuries' types the most part of them (205 cases that is 86, 3 %) is the damages of ligaments in different places (table 1).

The expert evaluation showed the multiple defects in medical records and description of trauma. For example, in 138 cases there is no description of bodily damages (bruises, bruises, bruises, wounds). In 8 cases the diagnosis "trauma of acrobaleno-clavicle articulation" was not confirmed by facts. In two cases it was formulated as the partial injury without details (stretch, tear, partial break). As it is known, there are six types of damage of acrobaleno-clavicle articulation: 1) stretching; 2) breaking clavicle-acromial ligaments, but coracoid-clavicle ligaments are not damaged, there is a subluxation collarbone; 3) the gap clavicle-acromial and coracoid-clavicle ligaments, full dislocated collarbone; 4) complete dislocation with back offset through the trapezius muscle; 5) complete dislocation with increasing distance between the

coracoid process shoulders and collarbone in 2-3 times; 6) full bottom dislocated collarbone, under the acromion or under the coracoid process [7]. The diagnosis “breaking of clavicle-acromial ligaments” was defined in 6 cases (code MKB-10-S43.1), while there was no description of bodily damages in 4 cases. Although this kind of trauma occurs because of direct (hitting the shoulder area) and indirect (impact in the area of the elbow joint is shown hand) impacts. So, any kind of bodily damages may be in the localizations defined. As it was indicated in 6 cases, the symptom of «keys» was positive; in 2 cases this symptom was negative. Other symptoms, confirmed this diagnosis, are not described. Yes, it is true, that the symptom of “keys” for such type of damage is very typical. It lies in the fact that under pressure with a finger on, the distal end of the clavicle he shifted down, and at the termination of pressure returns to its former place. However, there is so called the test of the crossed hands», described G.P. Kotelnikov, when the patient is asked to relax the muscles of the shoulder girdle, and then to maximally bring arms, crossing them. This shovel is shifted to the middle line and the acromion pushes her up. This test is helpful when the symptom of “keys” is not clear [3]. From other examination methods only radiographs in standard anteroposterior projection were carried out in all cases. When describing roentgenograms in 4 cases specified at increasing the joint space ASC, which is highly dubious. So, according to various sources, the size acrobaleno-clavicle articulation is about 19 x 9 mm on average and the width of the joint space of 1 to 3 mm [5]. From the anatomy point there are three forms of joint with different angles of the joints surfaces. While in 21 % of cases articular surfaces of discongruity [9]. In radiography in anteroposterior projection it is difficult to see the bottom edge of the collarbone and acromion, so radiographs in this projection to diagnose injuries ACU are not informative. It is better to perform x-rays anteroposterior projection with tilt tube 10^0-15^0 up [8]. But the most informative are x-rays with the load when the patient takes in both hands some burden 3-5 kg and it is performed images ACU in direct projection on both sides. The increase of the distance between the lower edge of the collar bone and the top edge of the coracoid process before and after exercise to 25^0-30^0 compared with healthy hand indicates on the full gap of the clavicle-beaked ligaments [4].

In the analysis of expertise with injury of the ankle joint (30 cases) the diagnosis was confirmed in only 4 of them. The distribution of the diagnosis’s in the medical records are the following: injury of the ankle joint (code MKB-10 S 90.0) - 7 out of 30 (23.6%), the sprained ankle (S 93.4) - 12 (40.0%), ligaments ankle (S 93.2) - 2 cases (6.6%), partial damage to the ligaments of the lower leg joint (cipher) - 2 cases (6.6%), damage to the ligaments of the ankle joint (cipher) - 2 (6.6%), distortion of ankle joint ligaments (cipher no) - 1 (3.3%), the outer ankle fracture (S82.6) - 3 cases (10.0%), post-traumatic arthritis (M 13.9) - 1 case (3.3%).

However, the description bodily injury in an ankle was absent in 18 cases (60.0%). In all cases radiography in standard front and rear projection was carried out. In neither case was not performed an ultrasound or MRI to confirm the diagnosis that would ensure the accuracy of diagnosis of injuries of the ankle joint ligaments according to the literature in 90 % of cases [6]. In 24 cases (80%) the diagnosis was defined on the fact of complaints of the patient on the pain without adequate medical and clinical evidences. The stability of the external part of the ankle joint is provided anterior talofibular ligament (ATFL), the length of which 12.0 cm in width 5.0 cm gap which occurs primarily when povertyline foot inside, because what is it to break occurs most frequently. Then the heel-peroneal ligament (CFL), which has great strength, comes. The most durable among the ligaments of the external part is back talofibular (PTFL) with a diameter of up to 9.0 mm at length to 9.0 mm. The gap of this link is due to exceeding the permissible load on the rotation and the varus deformity of the talus. This ligament may break or come off during involving a zone of rupture of the joint capsule [5].

The computed tomography (CT) was made in one case, which identified the outer ankle fracture that was qualified as a secondary harm. A heavy injury was defined in one case; the diagnosis was confirmed by x-ray and CT diagnostics: broken both ankles with damage tibiofibular of SYNDESMOS.

The diagnosis of damage of the ligaments of the knee joint occurs quite frequently (49 cases of 237 21.9%). Mainly 94% of patients were affected during a traffic accident: 85.7% - pedestrians, 8.3% - drivers and passengers; in 6% the damage to the ligaments of the knee joint was caused by criminal injury in accordance with medical documentation. On the diagnosis MKB -10 distributions was as follows (table 2). As the table shows, the diagnosis was confirmed only in 13 cases (25 %). The reasons are the following: in 21 cases there was no any expert-traumatologist's description of bodily damages. It must be underlined that MRI diagnostics for patients with the damage of knee ligaments was done more often (27 cases out of 52) than for patients with the damage of ligaments in other places. However, in the week after the injury study was conducted in 10 cases out of 27 (37.0%), in other cases - a month or more after injury. In 23 cases (44.2%) on medical documentation diagnosed with a bruised knee. But the examination of this diagnosis was only in 9 cases (39.1%): first, the presence of physical injuries in 9 cases (100%), clinically description of the symptom of «ballotation» patellar with subsequent arthrocentesis with obtaining blood - 7 cases (77.8%), MRI diagnostics - 5 cases (55.5%), ultrasound - 4 cases (44.4%). Of course, it is necessary to note the fact that diagnosis in acute period of injuries considerably is complicated because of the pain and associated hyper muscles with restriction of movement in the joint. According to literary data the correct

diagnosis is done in only 23.0% of cases [1]. While clarifying the circumstances of the injury is important. Thus, the gap internal lateral ligament happens when allocating shins with simultaneous external rotation, with severe (full rupture) additional blow to the outer surface of the lower third of the thigh or knee. During the inspection of the limb is the presence of bruising and excoriation. According to the literature the hemarthrosis in damaging of medial ligaments is found in 37% of cases. Moreover, according to some authors, the more volume hemarthrosis is than the damage heavier [2].

The deformation of the joint in the form valgus or varus deformity shows the complete rupture of the relevant collateral ligaments. This symptom is described in only 2 out of 9 cases (22.2%). In 17 cases gonarthrosis more than 2 degrees was diagnosed, which also caused the erroneous diagnosis of damage to ligaments, because it is accompanied by pain syndrome. However, the diagnosis of posttraumatic gonarthrosis installed on medical documents in 4 cases (7.8%) less than 3 months after injury, on the basis of x-ray performed within the first 24 hours after the injury, in General, is a gross mistake by trauma.

Thus the analysis of the revealed defects in medical records done by doctors-traumatologists in the formulation and confirmation of diagnosis for patients with damaged ligaments acrobaleno-clavicle, knee and ankle joints when determining the severity of injury showed the following: there is no one approach (algorithm) in description of bodily injuries by clinical doctors, no uniform standards of research of capsular ligament joints. All this requires more closely interaction between forensic service and practical health care in the elaboration of appropriate standards for evaluation of patients with this pathology.

Table 1.

The distribution of the patients with the injuries of ligaments by the localization of damages in accordance with the medical expertise records

The place of damage	Number of cases	The treatment period over 21 days	Without harm to health	Insignificant damage	Medieval damage	Hard harm	Difficult to estimate
Acrobaleno-clavicle articulation	8	8	8	0	0	0	0
Knee joint	52	46	37	9	3	1	2
Chest	9	6	7	2	0	0	0
Wounds of various localization	18	15	1	10	5	2	0
Muscles	8	8	4	1	3	0	0
The cervical spine	10	10	9	1	0	0	0
Lumbar spine	9	9	7	1	1	0	0
Hip joint	9	7	8	0	1	0	0
Coccyx	3	3	3	0	0	0	0
Shoulder joint	19	0	16	1	1	0	1
Ankle joint	30	28	24	2	1	1	2
Stop	13	12	9	3	1	0	0
Wrist joint, hand	9	7	7	0	2	0	0
Hematoma of various localization	26	20	4	19	3	0	0
Arthritis of various localization	11	11	11	0	0	0	0
Crash-syndrome	3	3	3	0	0	0	0
Total	237	199	158	49	21	4	5

Table 2.

The distribution of the patients with the injuries of ligaments of knee joint by the localization of damages in accordance with the medical expertise records

The diagnosis	Code MKB-10	The number of patients	Defined harm			Without harm
			Insign.	Med.	Hard	
Bruise, hemarthrosis of knee joint	S 80.0	9	5	0	0	4

Bruise of knee joint	S 80.0	14	4	0	0	10
Gap of internal literal ligament	S 83.4	9	0	2	0	7
Gap of knee joint's ligaments	M 23.8	3	0	0	0	3
Meniscus tear	S83.2	4	0	1	0	3
Gap of PKS	S83.5	4	0	0	0	3
Posttraumatic knee joint synovitis		2	0	0	0	0
post-traumatic arthrosis of the knee joint		2	0	0	0	2
Dislocation of the patella	S83.0	1	0	0	0	1
Stretching of the ligaments of knee joint		4	0	0	0	4
Injury of condilis lateralis	S82.1	1	0	0	1	0
Total		52	9	3	1	37

REFERENCES

1. Girshin S.G. Lazishvili G.D. Dubrov V.Je. Povrezhdenija i zabolevanija myshc, suhozhilij i svjazok (klinicheskij opyt i obzor literatury) [Injuries and diseases of the muscles, tendons and ligaments (clinical experience and literature review)] Moscow: IPK Dom knigi, 2013, 496 p.

2. Girshin S.G. Lazishvili G.D. Kolennyj sustav (povrezhdenija i bolevye sindromy) [The knee joint (damage and pain syndromes)] Moscow: NCSSH im. A.N.Bakuleva RAMN, 2007, 352 p.

3. Kotel'nikov G.P. Stukolov V.S., Tchernov A.P. Hirurgicheskoe lechenie akromial'nyh vyvihov kljuchicy [Surgical treatment of acromioclavicular dislocations] Mater mezhdunar. kongressa: «Travmatologija i ortopedija: svoevremennost' i budushhee» [Materials of International Congress: «Traumotology and orthopaedics: present and future»] Moscow, 2003, pp. 246-247.

4. Bearden J. Acromioclavicular dislocation: method of treatment/ J. Bearden, J.Hughson, Whatley W. J. //Sports Med. – 1973. - Vol 1. – P. 5-17.

5. Boswort B.M. Complete acromioclavicular dislocation. / N. Engl. J. Med. - 1949.- Vol. 241. - P. 221-225.

6. Muchle C. Collateral ligaments of the ankle: high resolution MR imaging with a local gradient coil and anatomic correlation in cadavers Radiographics / C.Muchle, L.R. Frank, T. Rand, [et al.]. - 1999. - Vol. 19. -P.673-677.

7. Rockwood C. J. Disorders of the AC joint. The shoulder / C.J Rockwood., F Matsen, G.Williams, D. Young. / Vol.1. - Philadelphia W.B.

8. Vastamaki M. Pectirali minor transfer in serratus anterior paralysis / M. Vastamaki //Acta. Orthop. Scand. 1984 Vol. 55. - P. 132-137.

9. Zanca P. Shoulder pain: involvement of the AC joint: an analysis of 1000 cases AJR / P.Zanca, J. Roentgenol. – 1971. - Vol. 112, P 493-506.

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