MEDICAL ISSUES AFECTING PADEL PERFORMANCE

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INTRODUCTION

Padel is a fast-growing racket sport. During last years, number of spectators at padel matches is increasing, for example, Premier Padel has reached more than 25.000, 30.000 or 55.000 spectators in tournaments celebrated in Paris, Madrid or Mendoza respectively[1-3]. Not only fans, but also the number of players has increased substantially, since the number of padel players has surpassed tennis ones in several countries such as Spain, Portugal, or Sweden. On top of that, there is also a significant growth in the number of padel clubs or courts during last 5 years in Europe, in Finland, for example, padel courts have increased 165%[4].

Despite padel has gained momentum, little evidence is reported in the current literature on this topic. The characteristics of the court and the specific padel gameplay (quicker pace, high number of shots taken) may contribute to injury risk in padel players[5]. Studies reported that two out of five padel players have suffered at least one injury during the last year, being ankle, shoulder or elbow the most common regions affected[6,7]. However, not only injuries are cause of absence from sport but also medical conditions, which, require medical assistance in almost 60% of total injuries[8].

This review describes the most common medical conditions in padel players and how to treat them.

OCULAR TRAUMA

Defined as every injury of the eye or adnexa due to blunt, penetrating, or perforating mechanisms. It is a common injury and may associate severe consequences such as permanent functional impairment (11% of the cases)[9] including irreversible blindness.

Padel is at high risk for eye injuries because of the small ball and high speed of the game. Contrary to popular belief, being an experienced player does not decrease the risk, possibly due to higher speed of the ball[10].

Evaluation of a player with ocular injury must include an interview with the player, teammate, rivals or spectators to review the mechanism of injury. We must consider if it is an open or closed-eye trauma, if the player was wearing glasses or contact lenses when trauma occurred, previous ocular diseases or any red flag that suggest emergent evaluation by an ophthalmologist[11,12]. Red flags are detailed in Table 1.

Physical examination must start by testing visual acuity one eye at a time. Pupil, oculomotor reflex and external ocular motility must be subsequently checked. Afterward, examinator must assess adnexa and orbit, using, if necessary, fluorescein eye drops with a cobalt blue light or cotton swabs and eye-irrigating fluids to remove foreign bodies if detected. Red flags that can be found in the examination are summarized in Figure 2.

To sum up, a physician must treat minor problems in court such as foreign bodies or trauma with no risk and recognize red flags. In case a red flag is detected, the player must be referred to an emergency service to be examinated by an ophthalmologist. Furthermore, protective eyewear is recommended for players to prevent potential severe eye injuries.

TRUNK INJURIES

According to literature, 13-20% of the injuries are related to trunk[13,14], becoming the second most common injury occurring in a padel

Table 1

Red flag	Potential problem
Loss of vision	*Various*
Diplopia	*Extraocular muscle entrapment or cranial nerve injury*
Photophobia	*Anterior chamber inflammation*
Flashes ± floaters	*Vitreous or retinal detachment*
Visual field defect	*Retinal detachment*
Ocular pain with foreign-body sensation	*Corneal abrasion*
Ocular pain with nausea or vomits	*Increased intraocular pressure*
Neurologic disabilities	*Severe traumatic brain injury*

Table 1: Clinical red flags in ocular trauma.

Table 2

Red flag	Potential problem
Unequal visual acuity	*Various*
Unequal pupils	*Anterior chamber inflammation, Traumatic mydriasis*
Restricted extraocular movements	*Extraocular muscle entrapment in orbital fracture, cranial nerve injury*
Photophobia while penlight examination	*Anterior chamber inflammation traumatic iritis, microhyphema)*
Iris not visualized in detail	*Anterior chamber inflammation (traumatic iritis, microhyphema), corneal injury, increased intraocular pressure*
Afferent pupillary defect	*Optical nerve affection.*
Enophthalmos or exophthalmos	*Orbital fracture*

Table 1: Red flags in ocular examination.

court, being more frequent in men than women[15].

As padel is played in couples, and every player usually plays in the same side of the court, the location of trunk injuries changes. An interesting observation is that neck pain happens to be more frequent in left side players and back pain in right side ones[14]. This may be explained as left side player is more offensive and perform a higher percentage of trays, smashes, side-wall and wall boast shots, which implies a trunk extension while right side player plays in a defensive way[16].

While evaluating, the clinician must ask for characteristics and location of pain, causes that alleviate or exacerbate the pain, movement that may precipitate pain and clinical red flags (Table 3). Examination must include inspection, palpation, movement range and specific manoeuvres of spinal cord compression, such as Lasegue and Bragard, strength, sensitivity, and reflexes[17-19].

If pain appears after high energy trauma, or vertebral fracture is suspected, it is extremely important to stabilize the spine and protect the spinal cord before examination. it is mandatory to maintain the protection until there is certainty of absence of injury.

Handling of trunk pain depends on the seriousness of the injury. Nevertheless, treatment must be based on pain control (commonly with NSAIDs), relative rest and targeted rehabilitation for safe and expedited return to sport[20].

RESPIRATORY DISEASES

Respiratory infections

Respiratory infections are one of the of the most common pathologies affecting sportsman. According to literature, elite athletes with high intensity training and competition are more likely to suffer from upper respiratory tract infections[21,22]. Different factors as jet lag, insomnia, nutritional deficit, high stress levels or exposure to pathogens, allergens, or polluted air, common in padel players, increase the risk of upper respiratory infections[23,24]. Management of the player must be focused on relieving symptoms and keep good hydration as there is no effective etiologic treatment[25]. When general symptoms arise, padel performance decrease. It is only when fever appears that total rest is indicated, since intense exercising could make the infection worse and complications as dehydration or heat illness may appear.

If the player suffer from fever, permanent cough, pleuritic pain, and general symptoms, must be accompanied by the doctor in charge through the closest hospital to evaluate a possible pneumonia.

Asthma

Exercise induced asthma (EIA) and exercise induced bronchospasm (EIB) are both recurrent conditions suffered by sportsmen. Indeed, exercise induced asthma is the most frequent chronic illness affecting elite athletes[26], even more frequent than normal population (10% vs 7%), according to Dr. García Río, pneumologist[27], and increasing over the last years[28]. This is explained by humidity and temperature loss in airways

because of quick breathing during high intensity exercise to increase oxygen transportation among other factors[29].

Asthma treatment includes beta-2 agonists inhaled at usual doses before starting exercise to prevent crisis. If EIA crisis has begun, glucocorticoids or beta-2 agonists inhaled can be used at maximum dose of 1600 mg a day, not exceeding 600 mg each 8 hours, otherwise it could be considered doping[30,31]. Another medication as antihistaminic or antileukotrienes can be used in case of severe asthma without being considered doping. If well treated, asthmatic padel players may perform as well as sane players.

Table 3

Red flag	*Potential problem*
Weakness	*Various (medullar compression, infection, etc)*
Fever	*Various (infection, neoplasia, etc).*
Atypical location	*Various*
Headache	*Various rheumatic polymyalgia, giant cell arteritis, etc).*
Visual symptoms	*Various*
Weight loss	*Neoplasia*
Absence of bladder control	*Medullar compression*
History of immunosuppression or infection	*Spondylodiscitis*
High energy trauma	*Various*

Table 3: Red flags in neck and back pain.

Air temperature	21.1°C 70°F	23.9°C 75°F	26.7°C 85°F	29.4°C 85°F	32.2°C 90°F	35°C 95°F	37.8°C 100°F	40.6°C 105°F	43.3°C 110°F	46.1°C 115°F	48.9°C 120°F
Relative humidity	Heat index (combined air temperature and relative humidity index)										
0%	17.8°C 64°F	20.6°C 68°F	22.8°C 73°F	25.6°C 78°F	28.3°C 83°F	30.6°C 87°F	32.8°C 91°F	35°C 95°F	37.2°C 99°F	39.4°C 103°F	41.7°C 107°F
10%	18.3°C 65°F	21.1°C 70°F	23.9°C 75°F	26.7°C 80°F	29.4°C 85°F	32.2C 90°F	35°C 95°F	37.8°C 100°F	40.6°C 105°F	43.9°C 111°F	46.7°C 116°F
20%	18.9°C 66°F	22.2°C 72°F	25°C 77°F	27.8°C 82°F	30.6°C 87°F	33.9°C 93°F	37.2°C 99°F	40.6°C 105°F	44.4°C 112°F	48.9°C 120°F	54.4°C 130°F
30%	19.4°C 67°F	22.8°C 73°F	25.6C 78°F	28.9°C 84°F	32.2C 90°F	35.6°C 96°F	40.1°C 104.2°F	45°C 113ºF	50.6°C 123°F	57.2°C 135°F	64.4°C 148°F
40%	20°C 68°F	23.3°C 74°F	26.1°C 79°F	30°C 86°F	33.9°C 93°F	38.3°C 101°F	43.3°C 110°F	50.6°C 123°F	58.3°C 137°F	66.1°C 151°F	
50%	20.6°C 69°F	23.9°C 75°F	27.2°C 81°F	31.1°C 88°F	35.6°C 96°F	41.7°C 107°F	48.9°C 120°F	57.2°C 135°F	65.6°C 150°F		
60%	21.1°C 70°F	24.4°C 76°F	27.8°C 82°F	32.2°C 90°F	37.8°C 100°F	45.6°C 114°F	55.6°C 132°F	65°C 149°F			
70%	21.1°C 70°F	25°C 77°F	29.4°C 85°F	33.9°C 93°F	41.1°C 106°F	51.1°C 124°F	62.2°C 144°F				
80%	21.7°C 71°F	25.6°C 78°F	30°C 86°F	36.1°C 97°F	45°C 113ºF	57.8°C 136°F					
90%	21.7°C 71°F	26.1°C 79°F	31.1°C 68°F	38.9°C 102°F	50°C 122°F						
100%	22.2°C 72°F	26.7°C 80°F	32.8°C 91°F	42.2°C 108°F							
	Possible fatigue or cramps heat related										
	Probable fatigue or cramps heat related, possible heat illness										
	High risk of heat illness										

Table 4: Correlation between climatologic conditions and chances of suffering heat illness. Translated from ITF guidelines.

COVID disease

During last years, COVID disease has become a great challenge to deal with. Although there is not much literature about COVID in elite sport, competing in couples or sharing locker room add some risk of contagion[29]. Treatment of COVID disease in padel players does not change in many things with upper airway infections.

RASH AND ANAPHYLAXIS

Rash in padel tournaments usually comes after exercise induced or allergic reaction to insect, bee, or wasp bite, especially in open court tournaments. Clinics vary between localised bump, dyspnea, stridor or even cause death.

General measures as avoiding causes or agents that generate cutaneous vasodilatation[32]. Antihistaminic can be used to treat mild rash. If the player presents dyspnea, angioedema, stridor, diarrhoea, consciousness loss or shock must be assisted by a doctor emergently and treated with intramuscular Adrenalin 0,5 to 1 mg. Diphenhydramine also is given via IM or IV (25 to 50 mg). Corticosteroids are used to prevent a delayed (biphasic) reaction[33]. Player must be carried to the closest hospital.

HEAT ILLNESS

Heat illness is a life-threatening illness originated in the combination of dehydration and body overheating. It commonly occurs in high humidity and temperature climatic conditions. It is important while preparing the event, considering temperature and humidity before games to prevent a possible heat illness when heat index is equal or over 32.2° C (90° F)[34]. correlation between climatologic conditions and chances of suffering heat illness is shown in Table 4, translated from ITF guidelines[34].

Symptoms and signs of heat illness are excessive fatigue, headache, dizziness, nausea, cramps or faints. Heat stroke is characterised by a hot, dry skin, rapid pulse and a high body temperature, which may rise over 41°C (106°F). Body should be cooled as quickly as possible, and player should be re-hydrated with oral or intravenous fluids. Immediate transfer to a hospital should be arranged[35].

Measures to prevent heat illness are correct hydration before, during and after

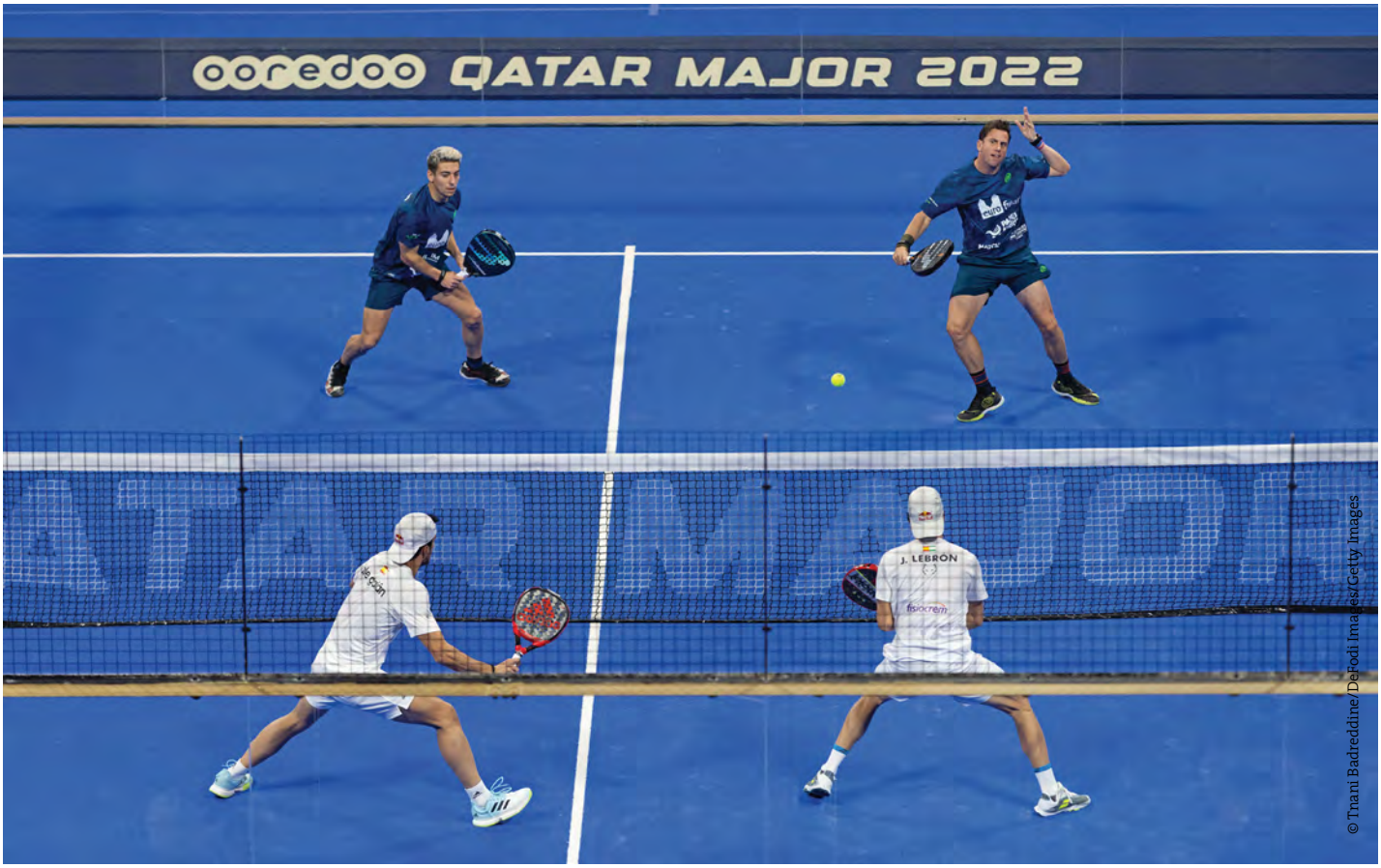

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Illustration

playing the game; offering shade places to the players to refresh and cold liquids or towels.

MENTAL HEALTH PROBLEMS

Precompetitive anxiety and its influence on sport performance is recently becoming one of the most popular topics in literature[36]. Understood as a Psychoemotional negative state of mind characterized by manifestation of worry and nervousness[37], anxiety appear most frequently in the previous moment to competition[38]. Precompetitive anxiety in conjunction with self-confidence is one of the psychological factors that most influence competitive sport performance[39]. In padel, it is important to highlight that senior player showed the highest value in cognitive anxiety and the lowest level of self-confidence[40].

It is worth highlighting the importance of treating mental health problems both before and during the game. A multimodal approach combining confrontation strategies and socio-familiar support may help the padel player to achieve emotional control, key to fight precompetitive anxiety[41,42]. Emergent medical examination may be needed when psychologic approach is not enough to control anxiety related symptoms or in presence of suicide thoughts[43].

CONCLUSION

After a quick summary of some potential life-threatening pathologies that can be present during a padel competition, we expound the need of a medical team capable to treat not only traumatic injuries, which are the most common, but also any medical emergencies in order to ensure sportsman health at every time.

We also would like to emphasise the lack of literature about medical illnesses in padel players. Medical diseases are not considered in padel players both professional and amateur. This situation should be improved to guarantee the best possible medical attention to padel players.

References

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