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Retinal detachment following hockey injury

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Thirty-three cases of retinal detachment following hockey injury were seen during a 15-year period at the retina clinic of Maisonneuve-Rosemont Hospital, Montreal. Most injuries occurred in adolescents, the average age being 18 years. The mean interval between injury and preoperative examination was 3 years. Almost half of these young hockey players remained legally blind in the affected eye even after a successful operation. A helmet with a protective face visor is suggested as the best prevention against severe ocular damage such as retinal detachment.

Trente-trois cas de décollement de rétine secondaire à des accidents de hockey étaient dirigés à la clinique de rétine de l'hôpital Maisonneuve-Rosemont à Montréal au cours de 15 années. Il s'agissait surtout d'adolescents dont l'âge moyen au moment de l'accident était de 18 ans. L'intervalle moyen entre l'accident et l'examen préopératoire fut de 3 ans. Presque la moitié de ces jeunes joueurs de hockey demeurent légalement aveugles de l'oeil atteint, même après une opération réussie. On suggère que la meilleure prévention contre un dommage oculaire sérieux, tel que le décollement de rétine, réside dans le port d'un casque avec visière protectrice.

Ice hockey is a game that may produce severe bodily injuries, mainly because of the speed of the game, the frequent and rough contact between the players, and the use of dangerous objects such as sharp sticks and hard pucks propelled at high speed. The undue violence in all leagues increases the frequency of injuries.

The hockey player's body is much better protected than his head and face.

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Previous studies have pointed out that the most common sites for hockey injuries are the head and the face.¹⁻⁴ Eyes alone are involved in 5% of all body injuries, and the hockey stick is the incriminated object in most instances.⁴⁻⁶ The importance of eye injuries and their prevention have been stressed by Pashby and colleagues⁵ in a previous issue of the Journal.

The purpose of the study reported below was to determine the incidence of retinal detachment following hockey injury, to define the characteristics of the detachment and to analyse the reasons for the relatively poor vision after operation.

Methods

We studied the 33 consecutive cases with a definite history of recent or past hockey injury of the eye among a total of 1600 cases of retinal detachment seen during a 15-year period at the retina clinic of Maisonneuve-Rosemont Hospital, Montreal. Preoperative investigation included the careful taking of the ocular history, measurement of visual acuity and refractive error, biomicroscopy of the anterior and posterior segments, tonometry, and detailed study of the fundus with the binocular indirect ophthalmoscope. Spe-

cial attention was directed to the history of contusion, the immediate signs of the injury, and the associated ocular findings.

Results

Incidence

Of 1600 retinal detachments 250 (15.6%) were due to a contusion of the globe and 33 (13.2%) of the 250 were associated with hockey. If the detachments following injury during sports other than hockey are included the proportion of postcontusion retinal detachments secondary to sports injury in general was 24.8% (Fig. 1). The proportion of retinal detachments due to hockey injury was 2% of the total number of retinal detachments.

All patients were male. The left eye was affected more often than the right eye (54.5% v. 45.5% of cases). The average age of the patients at the time of the preoperative investigation was 21 years. However, according to the history the average age at the time of the hockey injury was 18 years. Therefore the mean interval between contusion and examination was 3 years. The shortest interval was a few days and the longest, 29 years. These findings are similar to those for blunt injury of the eye.⁷

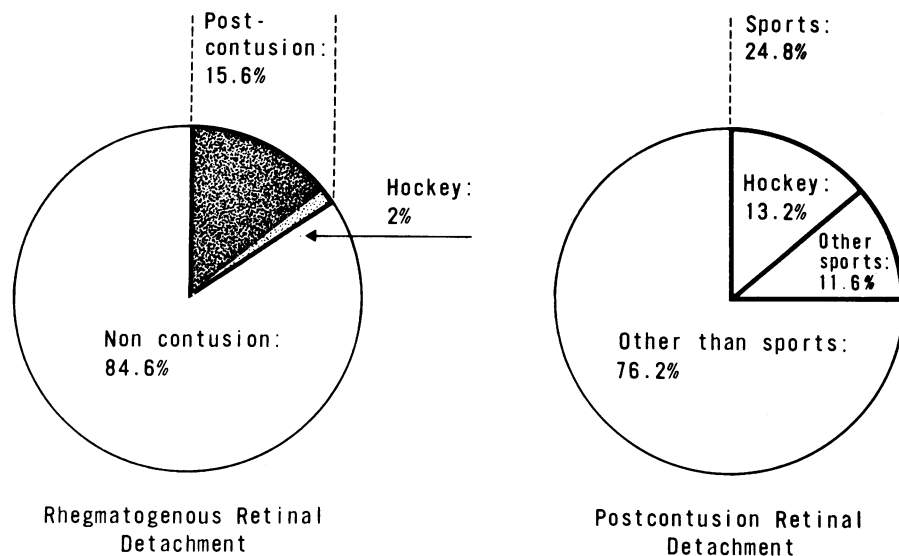


FIG. 1—Incidence of retinal detachment after sports injury.

Table I—Associated findings in anterior and posterior segments of eyes of patients with retinal detachment after hockey injury

Finding	No. of eyes
Subluxation of lens	3
Cataract	1
Vitreous hemorrhage	2
Choroidal rupture	2

Table II—Associated external injuries at time of eye injury

Finding	No. of eyes
Palpebral laceration	9
Facial laceration	2
Fracture of nose	1
Blowout fracture of orbit	1

The stick was responsible for the injury resulting in retinal detachment in 18 cases (54.5%) and the puck in 14 cases (42.4%). One patient, a player from the Quebec Junior League, was hit in the eye by an overshoe thrown by a spectator during a major altercation between players and spectators. In another instance a goaltender was hit in the left eye by a puck despite his mask.

Associated ocular findings

The loss of central vision was, in most cases, the symptom that prompted attendance at the retina clinic. However, besides detachment involving the macula, examination revealed in some cases other important and irreversible damage to the anterior and posterior segments (Table I). Hyphema occurred in three patients. Many patients also gave a history of external injuries immediately after the hockey accident,

Table IV—Extent of retinal detachment*

No. of quadrants detached	No. of eyes
1	5
2	15
3	1
4	12

*Macula not detached in five eyes.

Table V—Visual results of surgical repair of 30* eyes

Maximum visual acuity with correction	No. (and %) of eyes	
	Preoperatively	Postoperatively
> 20/200	8 (26.7)	19 (63.3)
≤ 20/200†	22 (73.3)	11 (36.7)

*Three eyes were inoperable.
†Blindness as defined by law.

Table III—Location and types of retinal breaks

Quadrant of break	Type of break; no. (and %) of total		
	Dialysis	Round hole	Giant* tear
Inferotemporal	17	3	} 1 } 1
Superotemporal	6	1	
Superonasal	1	—	—
Inferonasal	2	1	—
Total	26 (78.7)	5 (15.2)	2 (6.1)

*Involving more than one quadrant.

such as laceration of eyelids and face (Table II).

Retinal breaks and detachments

The location and types of retinal breaks are shown in Table III. Dialyses, or holes at the retinal periphery, and giant breaks accounted for 84.8% and round holes for 15.2% of all breaks. Dialyses, as found typically in post-contusion retinal detachment,⁷ were located mainly in the inferotemporal quadrant. Most of the detachments were located in the inferior quadrants; however, in 12 eyes the detachment was total (Table IV).

Results of surgical repair

Thirty patients in this series underwent retinal surgery. The remaining three lacked the criteria needed for a satisfactory visual prognosis. The operation was successful in reattaching the retina in 29 eyes (96.7%).

Visual results are shown in Table V. Approximately 63.3% of the 30 patients had a visual acuity in the injured eye, with correction, of 20/200 or better postoperatively, compared with 26.7% preoperatively. However, 36.7% of the 30 patients were legally blind in the injured eye postoperatively; if the other 3 patients are included, the proportion of all 33 considered legally blind was 42.4%. Of the fellow eyes 31 were emmetropic and 2 slightly ametropic (visual acuity, 20/30).

Comments

Hockey is a popular game among youngsters in Canada. This study has confirmed reports of others that hockey

can be hazardous and is often the cause of irreversible damage to the eye.^{4,5-7} In our series 42.4% of the patients were legally blind in the injured eye even after successful repair of the retinal detachment. However, visual acuity after retinal surgery is directly related to the duration of the retinal detachment. Long-standing detachments are found mostly in adolescents and young adults when the detachment is primarily postcontusional and located mainly in the lower part of the retina.⁸ The specific location of the detachment, with its slow progression and upper field defect, the youth of the patient and his reluctance to seek prompt advice, and the normal status of the other eye are the main factors resulting in the high prevalence of visual acuity of 20/200 or less in the injured eyes of these young hockey players. Other irreversible damage of the anterior and posterior segments of the eye also accounts in some cases for severe loss of vision.

We strongly suggest that the best way to prevent serious ocular damage due to hockey accidents, such as retinal detachment, is the use of a helmet with a protective face visor, as advocated by Pashby and colleagues.⁵ Rough play is almost impossible to eliminate among young players as long as violence is tolerated in hockey. The implications of this violence should be recognized.

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