

# Editorial Commentary: “There’s No Crying in Baseball,” But There Is Osteochondritis Dissecans of the Elbow



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**Abstract:** Osteochondritis dissecans of the capitellum is a rare and ultrasonically identifiable disease of the dominant elbow of preadolescent baseball players as young as 9 years of age. We must choose to protect these young players, either by initiating a screening program to identify the disease at an early stage when treatment results in an acceptable lifelong outcome or by vociferously limiting the daily, weekly, and yearly participation in this vulnerable group.

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“There’s no crying in baseball” exclaims Jimmy Dugan, manager of the Rockford Peaches in *A League of Their Own*; but there is just a small 1.8% incidence of osteochondritis dissecans (OCD).<sup>1</sup> Matsuura, Iwame, Suzue, Takao, Nishio, Arisawa, and Sairyo<sup>2</sup> set out to determine the “Cumulative Incidence of Osteochondritis Dissecans of the Capitellum in PreAdolescent Baseball Players” as a part of their ongoing search for understanding of this uncommon disorder.

This is the first study of its kind to determine an incidence, rather than a prevalence, by screening the same cohort twice, 1 year apart, and excluding the 12 OCD cases identified during the initial screen. Incidence is the number of new cases over a given period; prevalence is the proportion of cases at a single time within a population.<sup>3</sup> Matsuura et al.<sup>2</sup> report the incidence of OCD of the capitellum at 1.8% with 23 cases of 1,275 baseball players aged 6 to 11 years over a 1-year period based on screening ultrasound and confirmation with plain radiographs, magnetic resonance imaging, and computed tomography scanning. Using ultrasound as a screening tool in large populations, Matsuura et al.<sup>4</sup> found a prevalence of 2.1% of OCD within 1,040 baseball players aged 10 to 12 years; Ootoshi et al.<sup>5</sup> found a prevalence of 2.2% of OCD within 4,249 baseball players aged

6 to 17 years; and Kida et al.<sup>6</sup> found a prevalence of 3.4% of OCD within 2,433 baseball players aged 12 to 18 years. Although not highlighted in this study, by identifying 12 cases of OCD in the initial ultrasound screen of 1,423 baseball players aged 6 to 11 years, the authors found a prevalence of 0.8%.<sup>2</sup> Comparing these studies suggests that prevalence increases with age.

The ratios of prevalence to incidence suggest a duration of disease ranging from 0.44 to 1.89 years for OCD of the capitellum. This corresponds to the findings of Matsuura et al.,<sup>7</sup> who reported healing of asymptomatic stage I and II OCD lesions in 9 to 12 year olds between 12.3 to 14.9 months with conservative treatment, as well as the observations and recommendations of Kobayashi et al.<sup>8</sup> Of interest, 47 of the 58 players with abnormal findings on initial ultrasound but no OCD had no irregularities on repeat ultrasound 1 year later, following the idea of healing and resolution within 1 year.

Matsuura et al.<sup>2</sup> identified 70 players with ultrasound abnormalities on initial examination and 73 during the repeat ultrasound screen; however, they chose to exclude patients with Panjer disease in this study in an attempt to quantify only those with OCD, despite the idea that these 2 entities “likely represent a continuum of disordered endochondral ossification with presentation and prognosis dependent primarily on age of onset.”<sup>8</sup> What if we ignored our preconceived definitions and all those identified as abnormal on screening ultrasound actually had some variant of these diseases? Harada et al.<sup>9</sup> identified 33 players with ultrasound abnormalities, and all who underwent radiographs had confirmed pathology.

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In this study, not a single 6, 7, or 8 year old of 264 players was identified with OCD of the capitellum. There were 4 cases of Panner disease identified, but the age of these players was not listed.<sup>2</sup> Similarly, in an earlier study, Matsuura et al.<sup>10</sup> did not identify a single case of OCD by ultrasound screening of 321 players aged 6 to 9 years, and the 11 players with ultrasound abnormalities on initial screen had no abnormalities on repeat imaging 2 years later. Ootoshi et al.<sup>5</sup> did find ultrasound abnormalities in players aged 6 to 9; however, Panner disease was not listed as an exclusion criterion, nor were radiographs obtained to further classify the lesions.<sup>5</sup> Yoshizuka et al.<sup>11</sup> identified 54 cases of OCD in players 11 to 18 years of age. My review of the literature has not identified a case of OCD in a player younger than age 9, and thus I question the rationale to provide an odds ratio of 6 to 9 year olds to compare with the 10 and 11 year olds, rather than leave the division of 6 to 8 year olds with no cases and 9 to 11 with all 23 cases.

Matsuura et al. have been exhaustive in the study of elbow disorders in young baseball players, reporting elbow pain rates of 44.3% and 30.5% in 2 prospective studies of 149 pitchers and 449 players aged 7 to 11 years, with risk factors for elbow pain including playing in more than 70 or 100 games per year.<sup>12</sup> Ootoshi et al.<sup>5</sup> found elbow pain in 54.3% of 4,249 players aged 6 to 17 years, with far more cases of medial epicondylar fragmentation than OCD capitellum. The authors also reported elbow pain in 87.1% of the 93 players with capitellar OCD; however, their cohort included players in adolescence, making the likelihood of more advanced staging higher. Matsuura et al.<sup>12,13</sup> report that 24.1% of 1,275 players aged 6 to 11 years had a history of prior elbow pain at the initiation of the study and 34.8% of 23 players aged 9 to 11 with OCD had prior elbow pain; however, they do not identify the presence or absence of elbow pain during the study period when these cases of OCD developed.<sup>2</sup> They also report age 10 to 11 years and years of play as risk factors for OCD. Position and hours of training per week are not risk factors, in distinction to their own findings on previous elbow pain studies which were not specific to OCD.<sup>2,12,13</sup> This may be a result of type II error, failure to detect an association because of the small number of subjects in the subgroups, because all the players in this study were in both regular season and summer tournament teams with similar practice schedules and games played.

"The object of screening for disease is to discover those among the apparently well who are in fact suffering from disease."<sup>14</sup> Relative paucity of signs or symptoms makes this disease very hard to identify, especially in early stages. Although ultrasound has become a routine screening tool for youth baseball

players in Japan, this modality has not been adopted for widespread use in North America.<sup>5</sup> As more physicians implement ultrasound in their daily practice, more may be able to use this tool in their role as team/league physicians. Despite ultrasound using no radiation and potentially being provided to players for free, there is a cost to physicians to purchase the machine and to learn to use and interpret the images. Matsuura et al. had 5 years of experience with this modality to get to the point where they could identify 23 cases of 1,275 players. The current questions are, could other screening tests such as shoulder motion loss or core/hip weakness be performed on a widespread basis to identify youth baseball players at risk of other injuries, what costs are we willing to spend to implement these tests or ultrasound screens, and what cost are we willing to let 6- to 11-year-old baseball players bear, potentially for the remainder of their lives? Fortunately, for this preadolescent cohort, OCD of the capitellum does not seem to occur in those 6 to 8 years old; and for those 9 to 11 years old, if they are identified early and modify their activity, most will likely have resolution of any imaging abnormalities or symptoms with conservative care.

In 2014, Matsuura et al.<sup>4</sup> stated that "prevention seems to be of the utmost importance due to the lack of scientific evidence directing the management of this condition." Screening, by ultrasound or other mechanism, is not prevention of disease, however. Prevention of elbow overuse injuries including OCD comes from limiting play. Sports Trauma and Overuse Prevention sports injuries was initiated by American Orthopaedic Society for Sports Medicine in 2007 and has been supported by the American Academy of Orthopaedic Surgeons, Pediatric Orthopaedic Society of North American, National Athletic Trainer Association, and American Academy of Pediatrics. Single-sport specialization before late adolescence places these young athletes at additional, unnecessary risk of injury and psychological stress.<sup>15</sup> Aren't we supposed to care for the whole player, not just the capitellum?

Too many pitches, too many practice hours, and too many games pitched or played per day, per week, and per year are modifiable risk factors for elbow injuries in this young group of players. In Cameron Crowe's 1996 film *Jerry Maguire*, the title of Jerry's career-altering mission statement is "The Things We Think and Do Not Say: The Future of Our Business." His message is applicable to how we as physicians interact with our patients and their parents. "I was remembering even the words of the original sports agent, my mentor, the late great Dickie Fox who said: 'The key to this business is personal relationships.' Suddenly, it was all pretty clear. The answer was fewer clients. Less money. More attention. Caring for them, caring for

ourselves and the games, too.”<sup>16</sup> And may we add “and fewer throws”?

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