The impact of the COVID pandemic on tendon rupture in the UK

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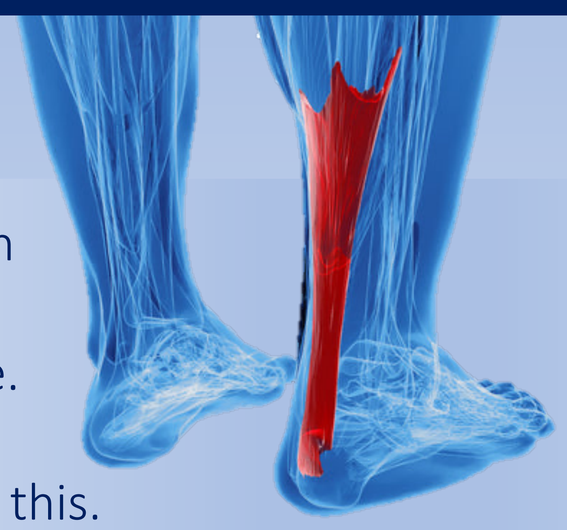

Background

- Sports-related acute tendon rupture (ATR) are common injuries, however, little is known about seasonal variations in prevalence.
- Previous reports have generated mixed results, with no clear consensus in the literature.
- The purpose of this investigation was to retrospectively review ATRs at a Major Trauma Centre to evaluate seasonal variation in rupture and the impact of COVID lockdowns on this.

Methods

- A retrospective review was conducted, identifying 299 patients diagnosed with an acute ATR between March 2017 and March 2021.
- Patients were excluded if they had a chronic rupture, laceration, debridement for tendinitis, Haglund deformity, or other nonacute indications for surgery.
- Statistical evaluation was undertake as chi squared evaluation and multivariate odds ratios smoking and steroid use.

Results

- Incidence of tendon rupture before the first lockdown was **7.93/100,000** (March 2017 - Feb 2020), during lockdowns was **4.42/100,000** (Feb 2020 - Feb 2021), and after lockdown (Feb 2021 – March 2021) tendon rupture increased significantly from pre-lockdown levels to **10.24/100,000** person-years (p<0.001).
- Highest rates of injury were seen in summer (**12.04 per 100,000**) and the lowest in winter (**6.75/100,000**), both of which were statistically significant compared to the mean ATR incidence (**7.76/100,000,** n=299, p<0.01).
- The COVID pandemic saw a significant reduction (p<0.0001) and then increase (p<0.01) in the rates of tendon rupture which has not yet returned to baseline.

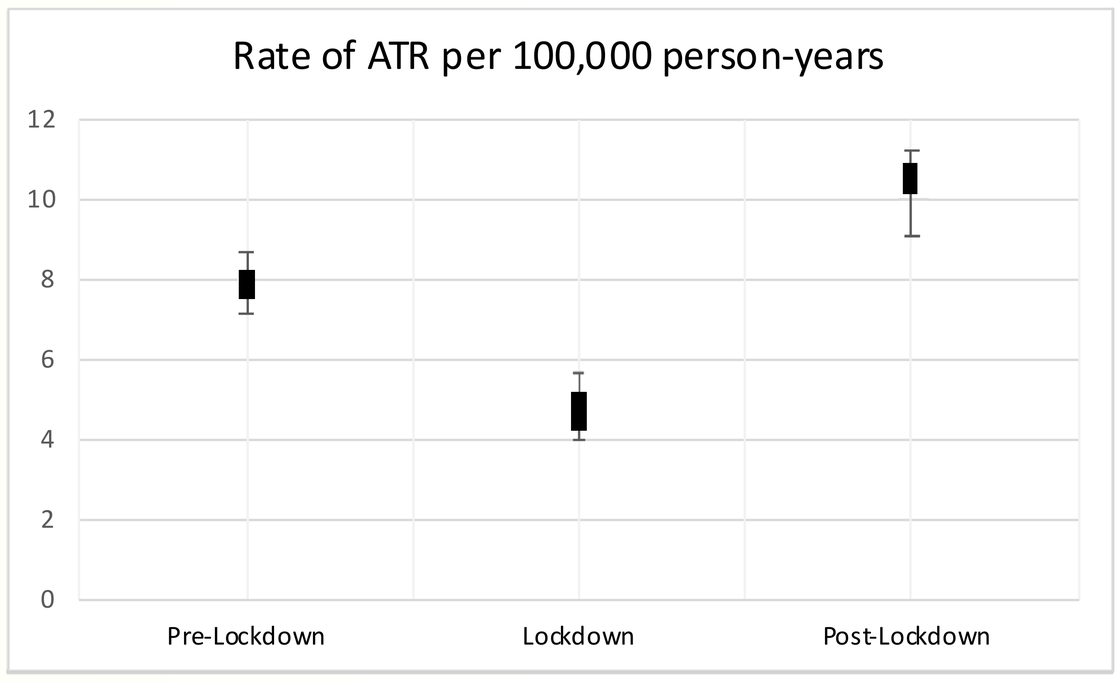

Figure 1: A bar chart demonstrating the rate of tendon rupture before during and after the main periods of lockdown (Wales) during the COVID19 pandemic.

- The most prevalent risk factor for rupture was **current smoking 24.5%** (OR:1.75,CI:1.19-2.55,p<0.01), followed by **corticosteroid usage 2.6%** (OR:2.34,CI:1.25-5.12,p<0.01). COVID infection was not an independent risk factor for tendon rupture.
- Six patients had tendon rupture following COVID infection (2.01%), interestingly two cases ruptured at 6 weeks post-infection and three 34-35 weeks after infection maybe suggesting increase risk at these time points.

Conclusion

- A statistically significant increase was noted in the incidence of ATRs in spring-summer and a statistically significant decrease in autumn-winter. This seasonal variation was first lost during, and then accentuated secondary to significant increase in rupture following the end of COVID lockdowns.
- Risk factor information will be of use for recognition of risk factors and preventive patient education by surgeons, general practitioners and physiotherapists within the UK.
- We suggest the potential impact of COVID infection on rupture that requires further investigation.

References:

Park HG, Youn D, Baik JM, Hwang JH. Epidemiology of Achilles Tendon Rupture in South Korea: Claims Data of the National Health Insurance Service from 2009 to 2017. Clin Orthop Surg. 2021 Dec;13(4):539-548. doi: 10.4055/cios20255.
Caldwell JE, Lightsey HM, Trofa DP, Swindell HW, Greisberg JK, Vosseller JT. Seasonal Variation of Achilles Tendon Injury. J Am Acad Orthop Surg Glob Res Rev. 2018 Aug 22;2(8):e043.
Saarensilta IA, Edman G, Ackermann PW. Achilles tendon ruptures during summer show the lowest incidence, but exhibit an increased risk of re-rupture. Knee Surg Sports Traumatol Arthrosc. 2020 Dec;28(12):3978-3986