

## The delta variant; young people are more affected !!!

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### Abstract

Asymptomatic infections with SARS Cov 2 are not uncommon; the delta variant generates clinical signs that most often combine general signs with more intense respiratory signs; they are polymorphic and nonspecific. Chest CT is an important diagnostic and triage tool for patients whose condition warrants hospitalization. The two main complications of the disease are respiratory distress due to worsening of pneumonia, which most often occurs after seven to ten days of evolution in the context of a cytokine storm, and thromboembolic disease. The delta variant seems to affect young subjects to a greater degree with a higher percentage of transmissibility. The degree of lethality depends on the comorbidities mainly obesity and diabetes in patients aged 20 to 40 years.

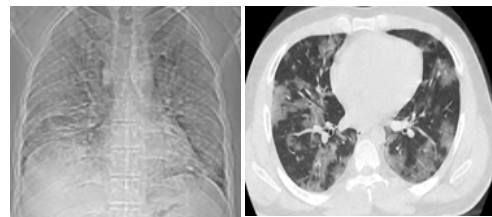
### Introduction

Coronaviruses are RNA viruses classified as Alpha coronavirus, Beta coronavirus, Gamma coronavirus and Delta coronavirus. Their name comes from their conformation with the presence of spicules forming a kind of crown. Alphacoronaviruses and Betacoronaviruses (genus where zoonoses are observed) seem to originate from bats, while Gamma coronaviruses and Delta coronaviruses would originate from birds [1]. It has been demonstrated that the worrying variant of delta SARS Cov 2 originating from India and emerging in the United States, has an increased transmissibility and reduction of the neutralization of certain monoclonal and currently responsible for a major pandemic that affects mainly young subjects with a significant mortality in elderly subjects or with comorbidities [2]. We report the case of a young COVID + patient admitted with respiratory distress.

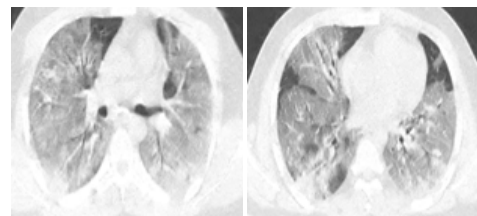
### Observation

Patient aged 38 years, obese, without any notable pathological history, admitted to the emergency room for suspected SARS Cov 2 infection in a coughing, headache, asthenia picture evolving for 3 days, his initial saturation was 90% on room air, the PCR was positive and the thoracic CT revealed diffuse frosted glass opacities, bilateral with pulmonary parenchymatous involvement by SARS Cov 2 from 25 to 50% classified as CORADS 6 The patient was hospitalized and put on treatment and oxygen therapy, 4 days later, the patient desaturated at 82% on room air and the control CT scan marked a clear ra-

diological worsening of the extent related to the SARS Cov 2 pneumopathy becoming critical on more than 90% with signs of superinfection. Patient was transferred to intensive care, died one day after hospitalization.



**Figure 1:** Olinitial chest CT scan showing ground glass opacities with extent of 25-50%.



**Figure 2:** Follow-up CT scan revealing radiological worsening of SARS Cov 2 pneumonia with extent of more than 90%.

### Discussion

Vaccines have proven highly effective in controlling hospitalizations and deaths associated with SARS Cov 2 infection, but the emergence of viral variants with new antigenic profiles threatens to diminish their effectiveness [3]. Diabetes and

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obesity are among the most frequently reported comorbidities in young patients infected with COVID 19. Based on the current data, diabetic patients do not appear to be at increased risk for SARS COV 2 compared with the general population [8]. On the other hand, and with the delta variant, diabetes and obesity are risk factors for developing severe and critical forms of COVID 19, the latter requiring admission to intensive care and/or invasive mechanical ventilation, with high mortality rates [4].

According to a study conducted by CORONADO, out of 2796 patients, 13.1% of the patients are less than 55 years old. The median body mass index (BMI) is 28.4 kg/m<sup>2</sup>, with 24.8% of patients having a BMI < 25 kg/m<sup>2</sup>, 36.2% between 25.0 and 29.9 kg/m<sup>2</sup> (overweight), and 39% ≥ 30 kg/m<sup>2</sup> (obesity). The median duration of diabetes is 11 years, with micro- and macrovascular complications present in 44.2% and 38.6% of cases, respectively [5]. Reassuringly, the prevalence of T1DM among all diabetes cases in CORONADO was lower than that revealed in the general population in the “National Representative Control Sample of People with Diabetes” (ENTRED) study: 2.1% versus 5.6%, respectively [6]. This difference is even more marked in patients aged less than 55 years, with 7.8% of T1DM patients in CORONADO versus 23.2% in ENTRED [6]. It is noted that the severity of COVID-19, and in particular the risk of death, appears to be lower in T1DM patients compared with those with T2DM (5.4% versus 10.6%, respectively). This is especially observed in younger patients (<55 years). On the other hand, it should be noted that an English general population study, involving more than 61 million individuals, showed an excess mortality related to COVID-19 in T1DM patients compared to non-diabetic subjects (with an odds ratio [OR] of 2.86 [95% confidence intervals, 95% CI: 2.58-3.18] after multiple adjustment for age and comorbidities in particular) [7].

## Conclusions

From the outset of the 2019 coronavirus disease (COVID-19) epidemic, diabetes emerged as one of the major comorbidities encountered in severe forms of COVID-19 with higher risk of death in type 2 diabetics with obesity.

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5. Diabète et COVID-19S Figure 1:: les leçons de CORONADODi-abète et COVID-19 : Les enseignements de l'étude CORONADO Bertrand cariou pierre Gourdy, Samy Hadjaj Matthieu Pichelin Matthieu Wargny L'institut du thorax, CHU de Nantes, université de Nantes, UMR INSERM1087, UMR CNRS 6291, Nantes, France. CHU de Toulouse et UMR1048/I2MC, hôpital Rangueil, université de Toulouse, Toulouse, France. CHU de Nantes, CIC INSERM 1413, clinique des Données, Nantes, France.
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