INTERNET NEWS

BS. NGUYỄN VĂN CÔNG

ys Miss Most Blunt Trauma Injuries

International staff writers
ul 2021

ggests that when used alone, chest X-ray (CXR), without other trauma screening criteria, has poor screening performance for blunt thoracic injury.

esearchers at the University of California, San Francisco (UCSF, USA) conducted a secondary analysis of data from the NEXUS Chest CT study (held between August 2011 and May auma centers in the United States), which included a total of 4,501 participants who had been injured primarily in motor vehicle accidents and who received initial chest x-rays, omography (CT scans). The injuries were categorized as clinically major or minor.

revealed that CXR missed blunt trauma injuries in 818 patients (54.7%), of which 7.7% were classified as major injuries. The most common missed major injuries were sternal fractures, spin
njuries, while the most common missed minor injuries were pericardial effusions, sternal fractures, and mediastinal hematomas. The study was published on June 19, 2021, in the *America*
Medicine.

suggest that the CXR should be completely abandoned in adult blunt trauma evaluation," concluded study co-authors David Dillon, PhD, and Robert Rodriguez, MD. "The CXR is still useful fo
uma patients, and it is an essential component of our chest CT decision instrument, which safely guides selective chest CT utilization, with reductions of as many as 38% of chest CTs."

s the main modality in screening and diagnosing thoracic injuries in trauma patients, used to visualize rib fractures, lung contusions, pneumothorax and hemothorax, emphysema, diaphra
, and fractures of the axial skeleton. It is common practice for a CXR taken in the emergency department to be assessed by the trauma team, and not by a trained radiologist.

ks:

f California, San Francisco

hat is the role of molnupiravir and favipiravir the treatment of coronavirus disease 2019 OVID-19)?

ed: Jun 25, 2021 | Author: David J Cennimo, MD, FAAP, FACP, FIDSA, AAHIVS; Chief Editor: Michael Stuart Bronze, MD more...

ences

stigational Antivirals

upiravir

upiravir (MK-4482 [previously EIDD-2801]; Merck) is an oral antiviral agent that is a
rug of the nucleoside derivative N4-hydroxycytidine. It elicits antiviral effects by
ducing copying errors during viral RNA replication of the SARS-CoV-2 virus.
minary results from the phase 2a dose-ranging MOVe-OUT study (n = 202) showe
average of 10 days after symptom onset, 24% of outpatients in the placebo group
ined culture positive for SARS-CoV-2; whereas, no infectious virus could be
vered at study day 5 in any molnupiravir-treated patients. The inpatient
upiravir study (MOVe-IN) has been halted, but the phase 3 trial in outpatients who
at least 1 risk factor for poor outcomes (eg, advanced age, obesity, diabetes) will
eed with patients receiving 800 mg orally twice daily. [161]

vipiravir

piravir (Avigan; Appili Therapeutics) is an oral antiviral approved for treatment of enza in Japan. It is approved in Russia for treatment of COVID-19.

piravir selectively inhibits RNA polymerase, which is necessary for viral ication. An adaptive, multicenter, open label, randomized, phase 2/3 clinical trial of piravir compared with standard of care I hospitalized patients with moderate COVID was conducted in Russia. Both dosing regimens of favipiravir demonstrated similar logic response. Viral clearance on Day 5 was achieved in 25/40 (62.5%) patients on e favipiravir group compared with 6/20 (30%) patients in the standard care group (018). Viral clearance on Day 10 was achieved in 37/40 (92.5%) patients taking piravir compared with 16/20 (80%) in the standard care group (p = 0.155). [162]

e United States, the phase 3 PRESECO (Preventing Severe COVID Disease) study i uating use in patients with mild-to-moderate symptoms to prevent disease gression and hospitalization. The phase 3 PEPCO (Post Exposure Prophylaxis for VID-19) study will look at asymptomatic individuals with direct exposure (within 72 rs) to an infected individual. A study in hospitalized patients is also underway. [163, Additionally, the phase 2 CONTROL study is evaluating use to control outbreaks of VID-19 in Canadian long-term care facilities. [165]

t x-ray may predict risk of hospitalization in COVID-19

Morton, AuntMinnie.com staff writer

5, 2021 -- A single outpatient chest x-ray may be all it takes for an artificial ence (AI) algorithm to tell physicians which COVID-19 patients will likely need alization and supplemental oxygen, according to a study published online May *cademic Medicine*.

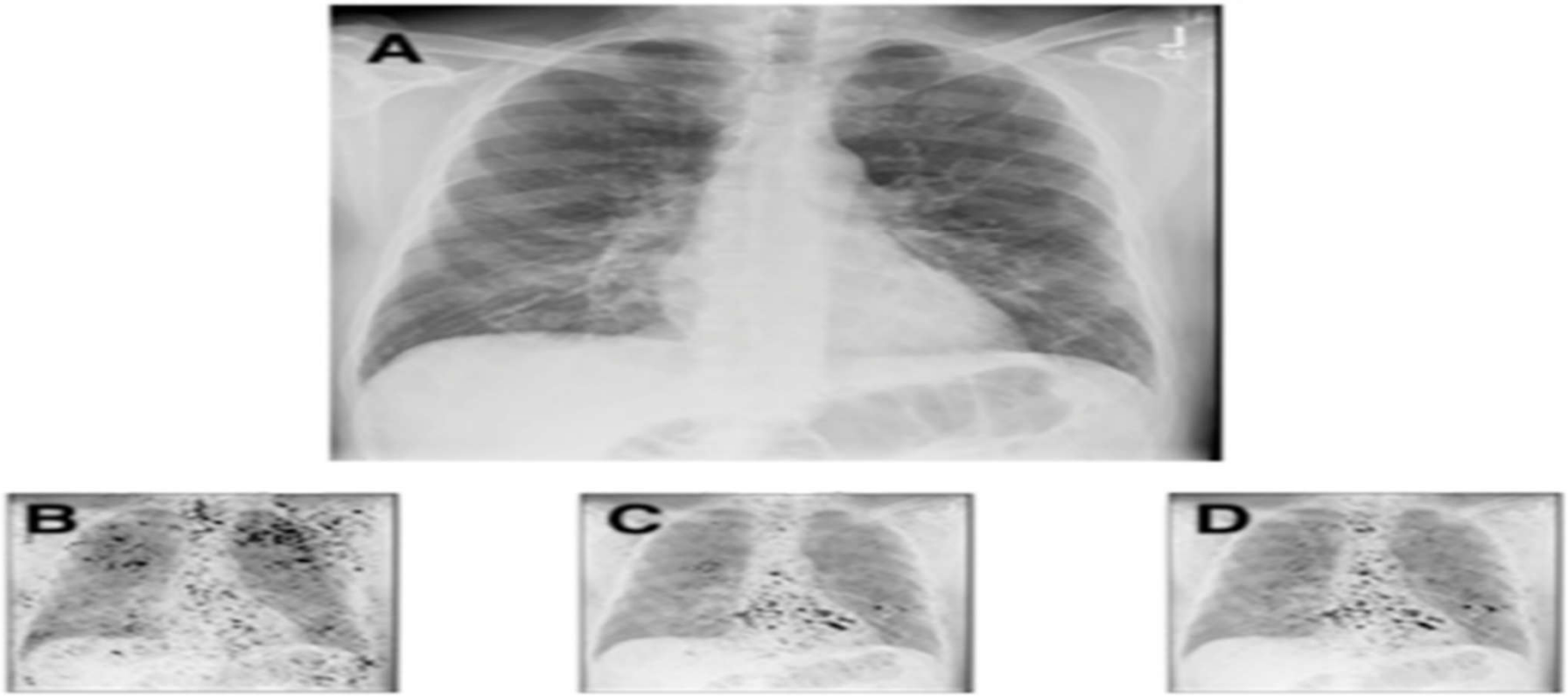
earchers created an AI program that first identified comorbid conditions such as
iac arrhythmias and chronic obstructive pulmonary disease (COPD) on frontal
st x-rays of patients with COVID-19. The algorithm then predicted the likelihood
hether those patients would require full hospital admission and supplemental
gen within 14 days.

s deep-learning technique adds value when assessing patients with unknown
ical history or awaiting laboratory testing," wrote lead author Dr. Ayis Pyrros of
age Medical Group in Tinley Park, Illinois.

vious studies have shown that comorbid conditions like diabetes, cardiac
ythmias, and COPD are associated with more severe cases of COVID-19.
ever, current methods for recognizing these comorbidities in ambulatory
ents, such as review of manual or electronic health records or contemporaneou
ent history are imperfect and often incomplete, according to the authors.

is study, Pyrros and colleagues from the University of Illinois created a deep-
ning program to predict the presence of specific comorbidities on outpatient
al chest x-rays and tested it to see if it could help physicians identify patients
would require full hospitalization and supplemental oxygen. They included 413
ents who had received both a chest x-ray and a positive COVID-19 test in an
ulatory or immediate care setting between March 17, 2020, and October 24,
0.

model was trained to identify comorbidities on x-rays corresponding to a
cific subset of hierarchical condition category codes from the International
sification of Diseases, Tenth Revision: diabetes with chronic complications,
oid obesity, congestive heart failure (CHF), specified heart arrhythmias, vascula
ase, and COPD.



Chest radiograph (A) of a 63-year-old male patient with COVID-19 hospitalized for seven days, and with a body mass index of 26, demonstrating subtle ground-glass opacities in a lower lung distribution with increased geographic (0.34) and opacity scores (0.64). The integrated gradients saliency maps, with darker shades representing higher scores from the multitask comorbidity hierarchical condition category model: morbid obesity (B), congestive heart failure (C), cardiac arrhythmias (D). Much of the activation seen is outside the lung parenchyma, with notable activation of the axillary soft tissue for obesity (B) and heart for congestive heart failure and cardiac arrhythmias (C, D). The activations for congestive heart failure and cardiac arrhythmias are very similar, but they demonstrate subtle differences, with slightly greater activation at the left atrium and aortic knob (D), likely suggesting the associations of vascular disease and atrial fibrillation.

ty-one (12.3%) of the patients had a full hospital admission, with all requiring
pplemental oxygen. Four patients died. By combining data on comorbidities foun
frontal chest x-rays, as well as adding patient age, the deep-learning model
edicted prolonged hospitalization and supplemental oxygenation in ambulatory
OVID-19 patients with an ROC AUC of 0.837 (95%, confidence interval: 0.791-
883).

abetes with chronic complications, cardiac arrhythmias, CHF, COPD, predicted
e, and geographic extent and severity of opacity were all significant predictors (p
0.05), while morbid obesity was not.

this preliminary study we developed an ensemble deep-learning model to predi
pplemental oxygenation and hospitalization of > 2 days in outpatients testing
sitive for COVID-19," the researchers wrote.

portable radiographs were used in the training or testing of the model, however
hich could limit the model's use in emergency departments and hospitals, the
thors stated. Moreover, implementing AI models remains a technical challenge a
ost institutions and practices, with relatively few available platforms or widesprea
option.

onetheless, the model is important because it is among the first to directly predict
quantify comorbidities on frontal chest x-rays that contribute to COVID-19 patien
tcomes, they added.

his result suggests that further validation and extension of this particular
ethodology is warranted," the researchers concluded.

AI interpret chest x-rays as well as rad residents?

ik L. Ridley, AuntMinnie.com staff writer

ber 9, 2020 -- Artificial intelligence (AI) software can yield similar or even, by measures, better performance than radiology residents in interpreting chest graphs, and it could potentially be utilized for automated preliminary ssments of these exams, according to research published online October 9 in *A Network Open*.

archers led by first author Dr. Joy Wu and senior author Tanveer Syeda-
ood, PhD, of IBM Research compared the performance of a deep-learning
with that of five third-year radiology residents on nearly 2,000 chest
raphs from emergency departments (EDs). The team found that the algorithm
d similar sensitivity but statistically higher specificity and positive predictive
compared with the residents.

rating such AI systems in radiology workflows for preliminary interpretations
e potential to expedite existing radiology workflows and address resource
ty while improving overall accuracy and reducing the cost of care," the authors

a training dataset of 342,126 frontal chest radiographs acquired in ED and
t care settings, the team of researchers trained an algorithm to assess the
s for the presence of 72 findings they considered to represent a full-fledged
inary read.

researchers then selected five third-year radiology residents from academic
cal centers around the U.S. after they had passed a reading adequacy test.
led to the AI algorithm estimates, these residents each interpreted
oximately 400 nonoverlapping sets of anteroposterior (AP) frontal chest
graphs from a hospital source.

mparison with the ground truth, the algorithm yielded a pooled k value of 0.544
per-finding basis, while the residents had slightly higher agreement --
ucing a pooled k value of 0.585.

eneral, residents performed better for more subtle anomalies, such as masses
nodules, misplaced lines and tubes, and various forms of consolidation, while
I algorithm was better at detecting nonanomalous findings, the presence of
s and lines, and clearly visible anomalies, such as cardiomegaly, pleural
ion, and pulmonary edema," the authors wrote. "Conversely, the AI algorithm
rally performed worse for lower-prevalence findings that also had a higher leve
fficulty of interpretation, such as masses or nodules and enlarged hilum."

e researchers also assessed preliminary interpretation performance by mparing results on a per-image basis.

AI vs. residents for preliminary interpretation of chest radiographs

	Radiology residents	AI algorith
Mean image-based sensitivity	72%	71.6%
Mean image-based positive predictive value	68.2%	73%
Mean image-based specificity	97.3%	98%

With the exception of sensitivity ($p = 0.66$), the differences were statistically significant ($p < 0.01$).

hese findings suggest that it is possible to build AI algorithms that reach and ceed the mean level of performance of third-year radiology residents for full dged preliminary read of AP frontal chest radiographs," Wu and colleagues his diagnostic study also found that while the more complex findings would nefit from expert overreads, the performance of AI algorithms was associate e amount of data available for training rather than the level of difficulty of erpretation of the finding."

ven if the AI software is utilized to perform preliminary interpretations to targe ost prevalent findings, final reads should still be performed by the attending ysician, however, to avoid potential misses of less-common results, accordi e researchers.

aving attending physicians quickly correct the automatically produced reads n expect to significantly expedite current dictation-driven radiology workflow prove accuracy, and ultimately reduce the overall cost of care," the authors

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aycan workstation

A Mac-based multi-modality workstation for post-processing and primary diagnosis

Today's increasing volume of image data requires high-performance workstations that allow multi-planar imaging and manipulation–introducing aycan workstation, an advanced image-processing tool and DICOM PACS workstation for conventional, multi-slice and other image reading. With the most robust feature set on the market, the FDA cleared aycan workstation offers high performance at a great value.

FDA clearance, integration, service, concurrent licensing and other advantages

aycan workstation provides numerous advantages over open source and other commercial versions of OsiriX including FDA 510(k) clearance, which ensures full conformity with existing regulations. And by following ISO 9001 and 13485 standards, this re-engineered software and all of its certified plug-ins are of the highest quality. With aycan workstation, you also get a detailed user manual, and optional concurrent licensing. Plus, only aycan offers training and integration services, and immediate, live, customer support. When you consider all the benefits and cost savings from these added features and services, you'll agree aycan workstation provides the best overall value.

Vendor neutral DICOM system for easy integration, expansion, and stability

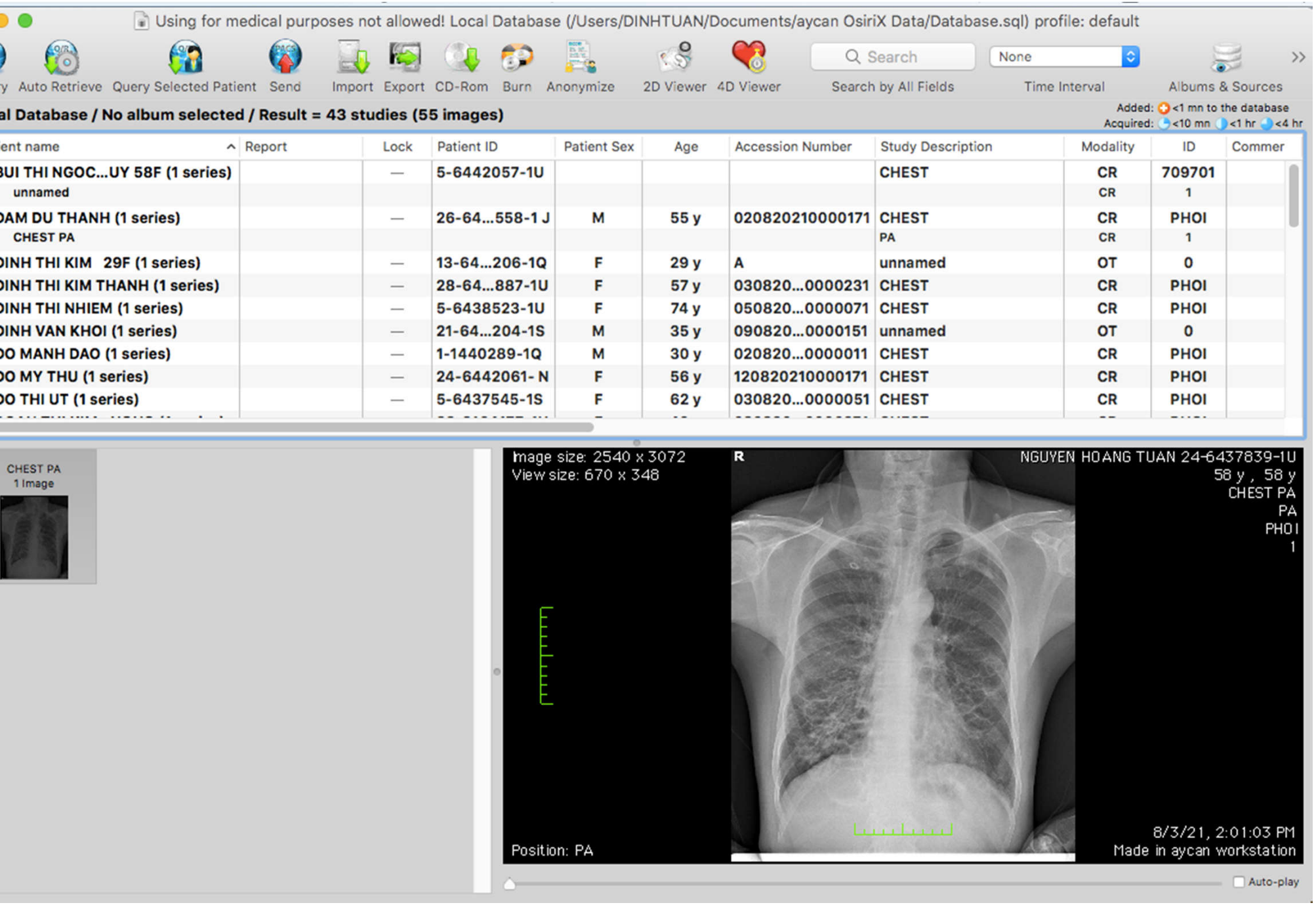
Fully compliant with DICOM 3.0 standards, aycan workstation can easily integrate into any DICOM workflow, or stand-alone. Either way, its complete plug-in architecture allows for easy expansion of capabilities. In fact, aycan continually develops certified clinical and workflow plug-ins to further enhance the workstation's possibilities. And because aycan workstation is built on the Macintosh operating system, everything runs on an extremely stable platform.

2, 3, 4 and 5D capabilities make processing and diagnosis easy

aycan workstation's unique design for navigation and visualization of multi-modality and multi-dimensional images makes post-processing and primary diagnosis easy. The 3D Viewer allows for all current rendering modes (including MPR and MIP), and the 4 and 5D image manipulation and modeling capability allow temporal and functional dimensions to be added. aycan workstation also enables image fusion between two different series.

Ultra fast system that's easy to use

Extremely fast image upload and processing times create a real-time workflow and eliminate the need for time-consuming pre-processing. You'll also pick up speed with an easy to use interactive user-interface, and a CD import function that automatically extracts and directly imports DICOM information into the aycan workstation database. This capability also prevents pre-loaded viewers from running, which means only one workstation is needed for viewing. And, burning CDs is easy–you can anonymize studies, add HTML/QuickTime images and associated reports, and include a DICOM viewer for non-Mac workstation viewing.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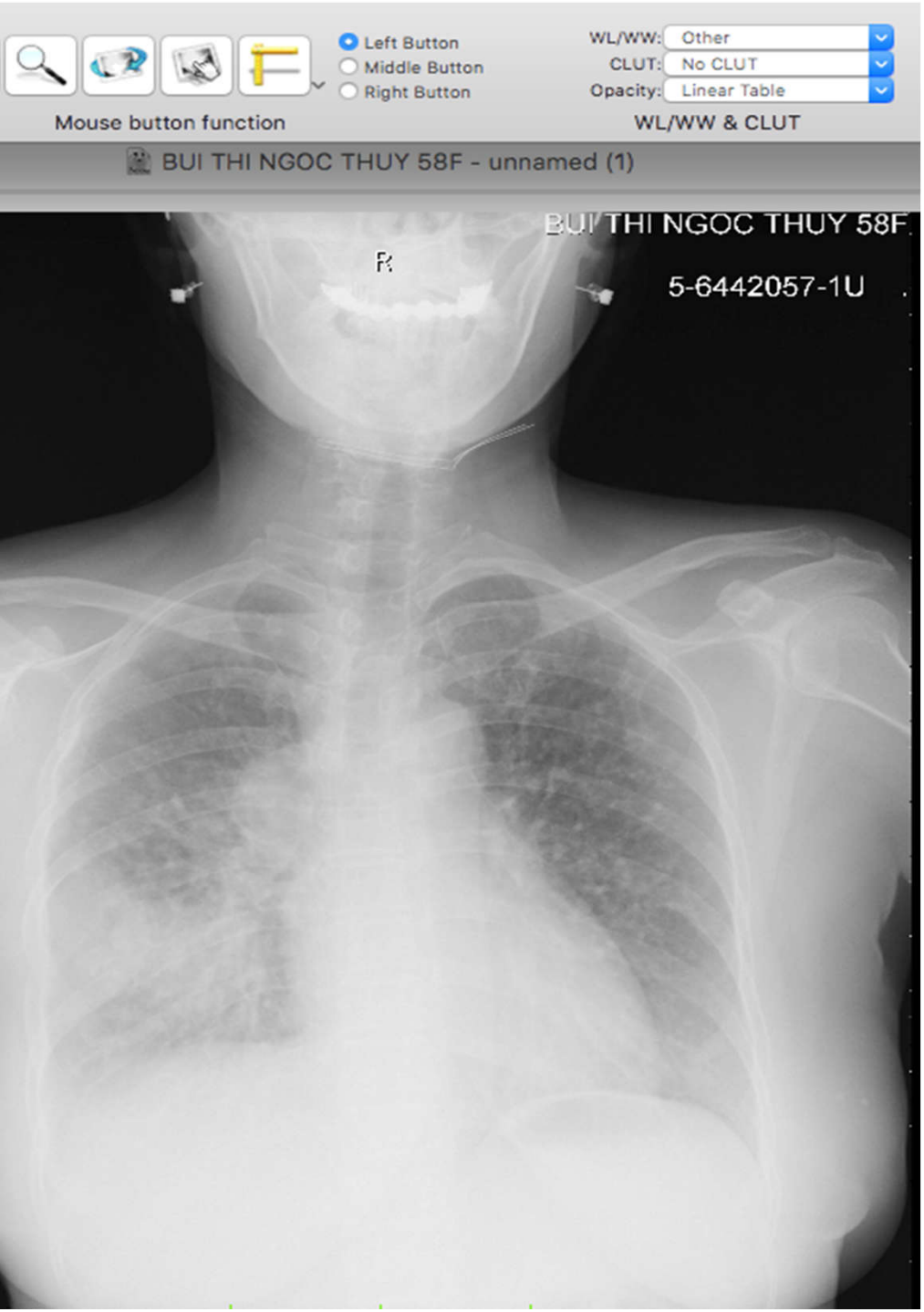
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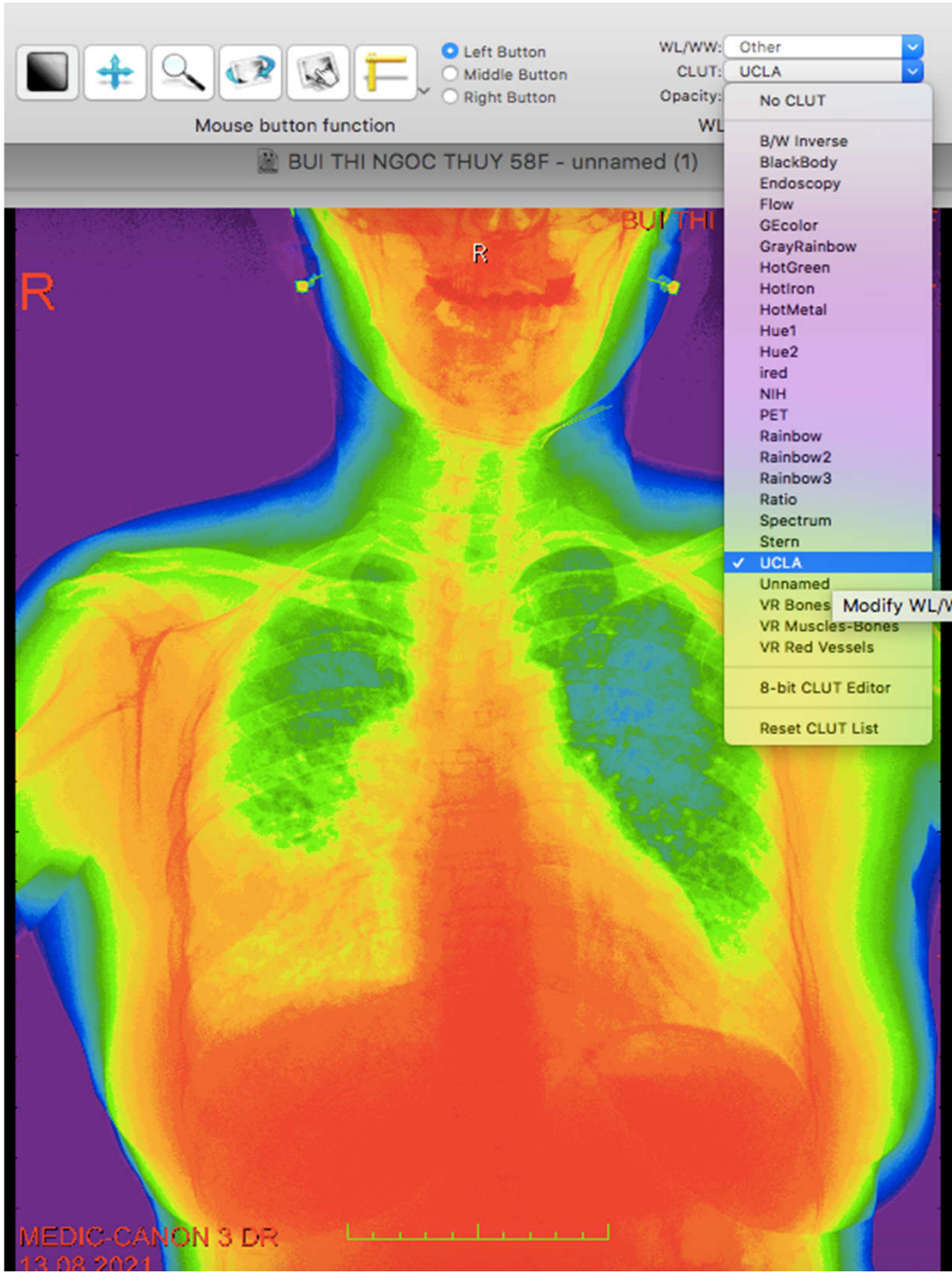
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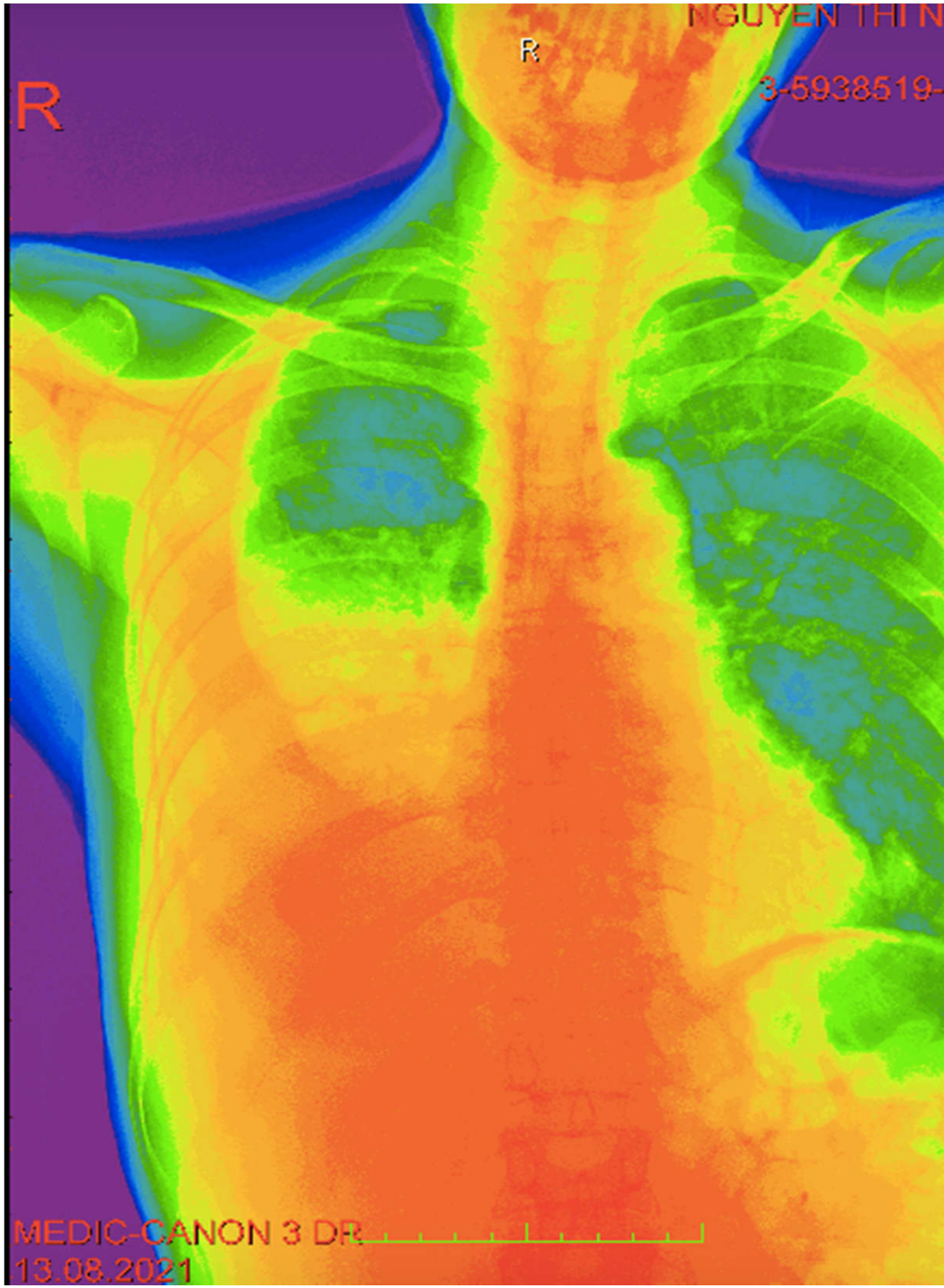
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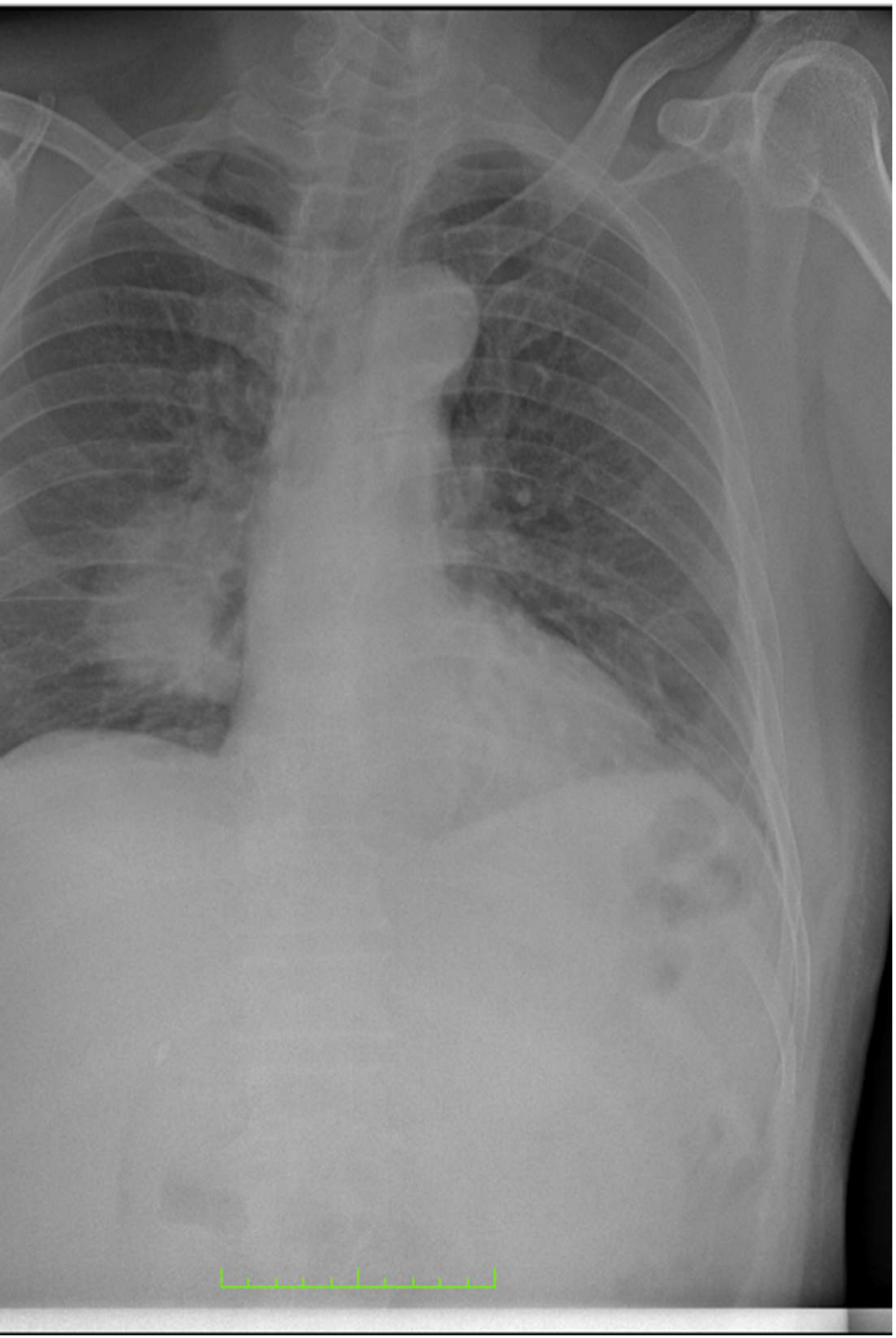

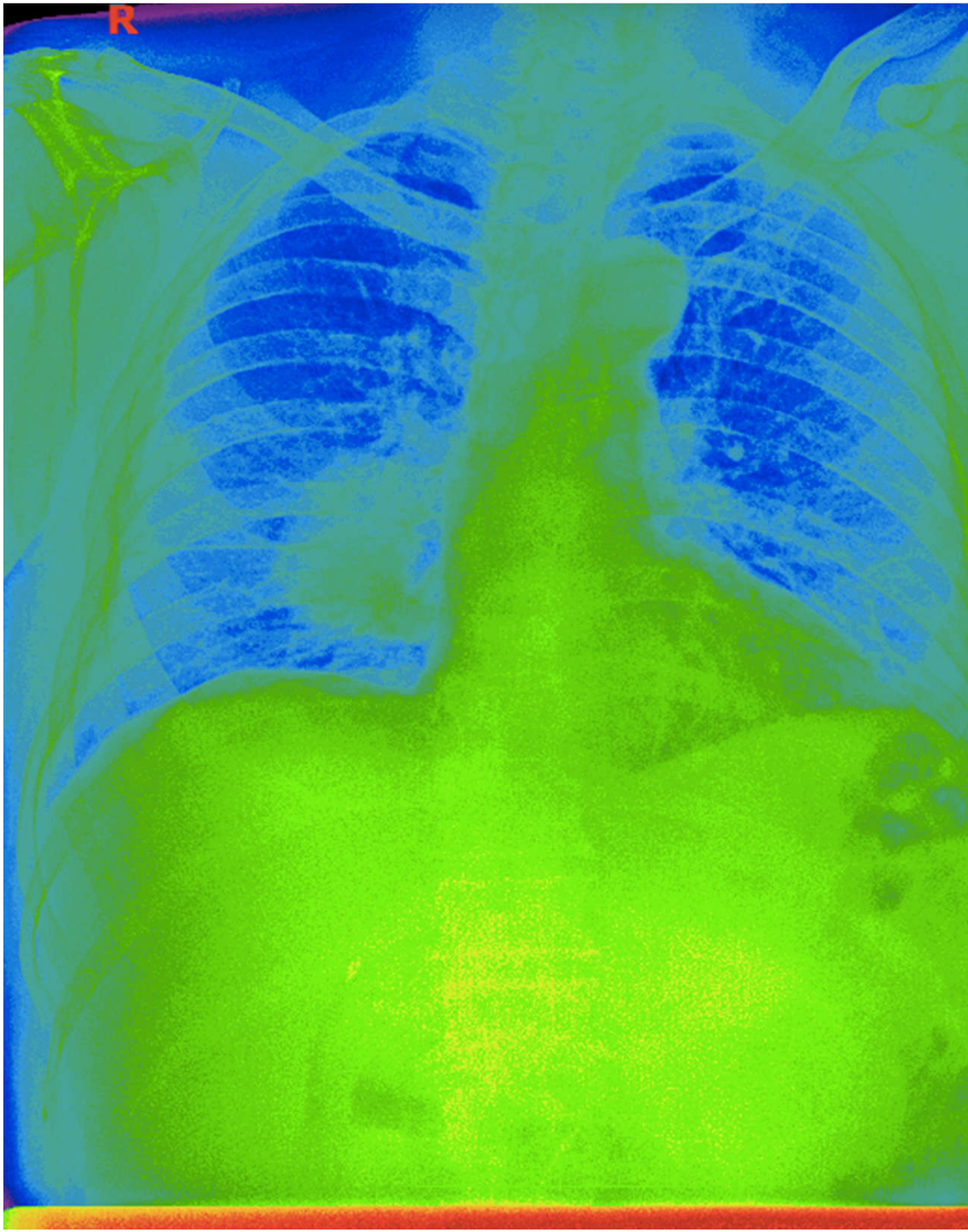
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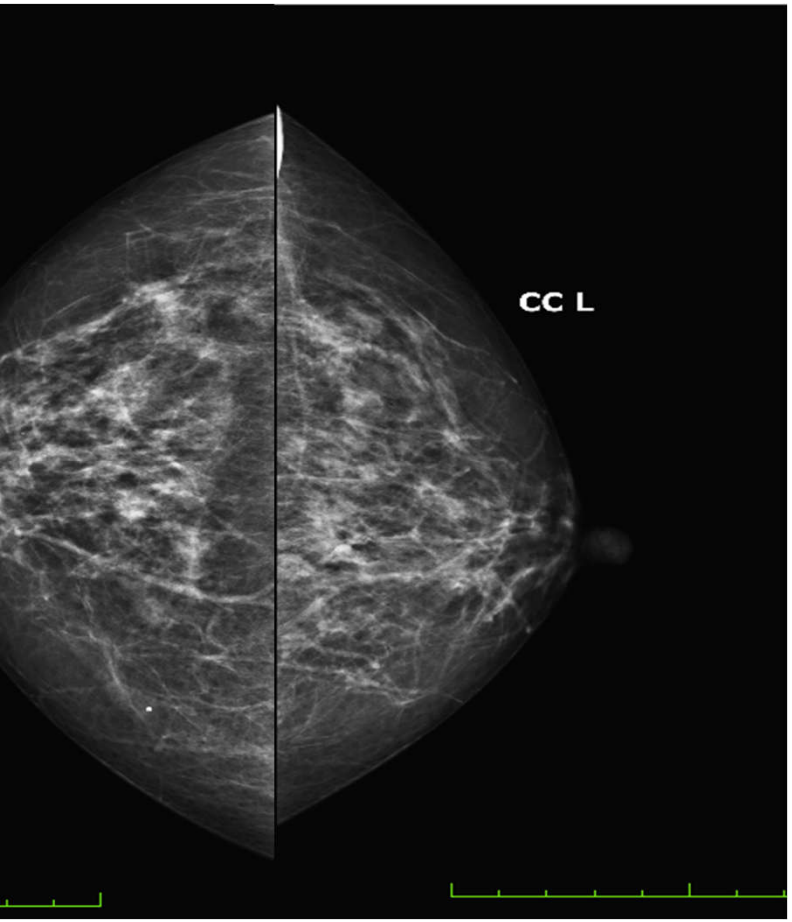
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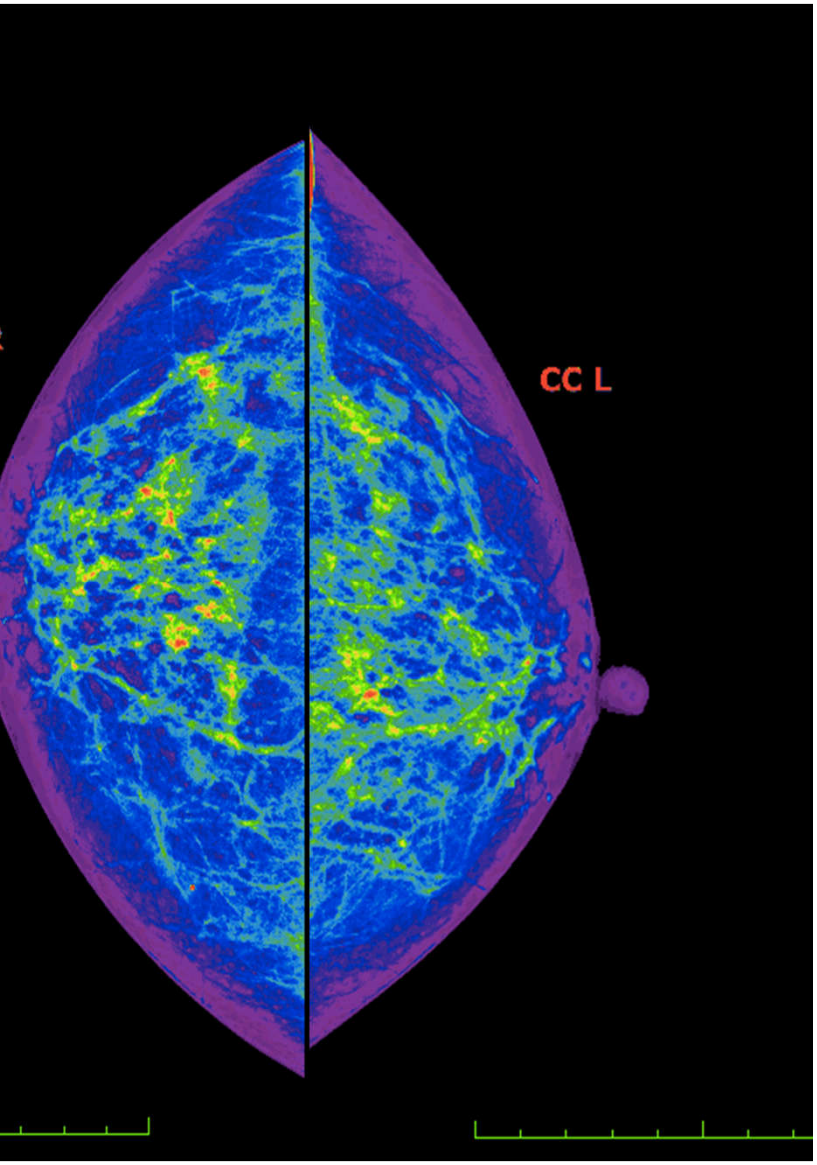
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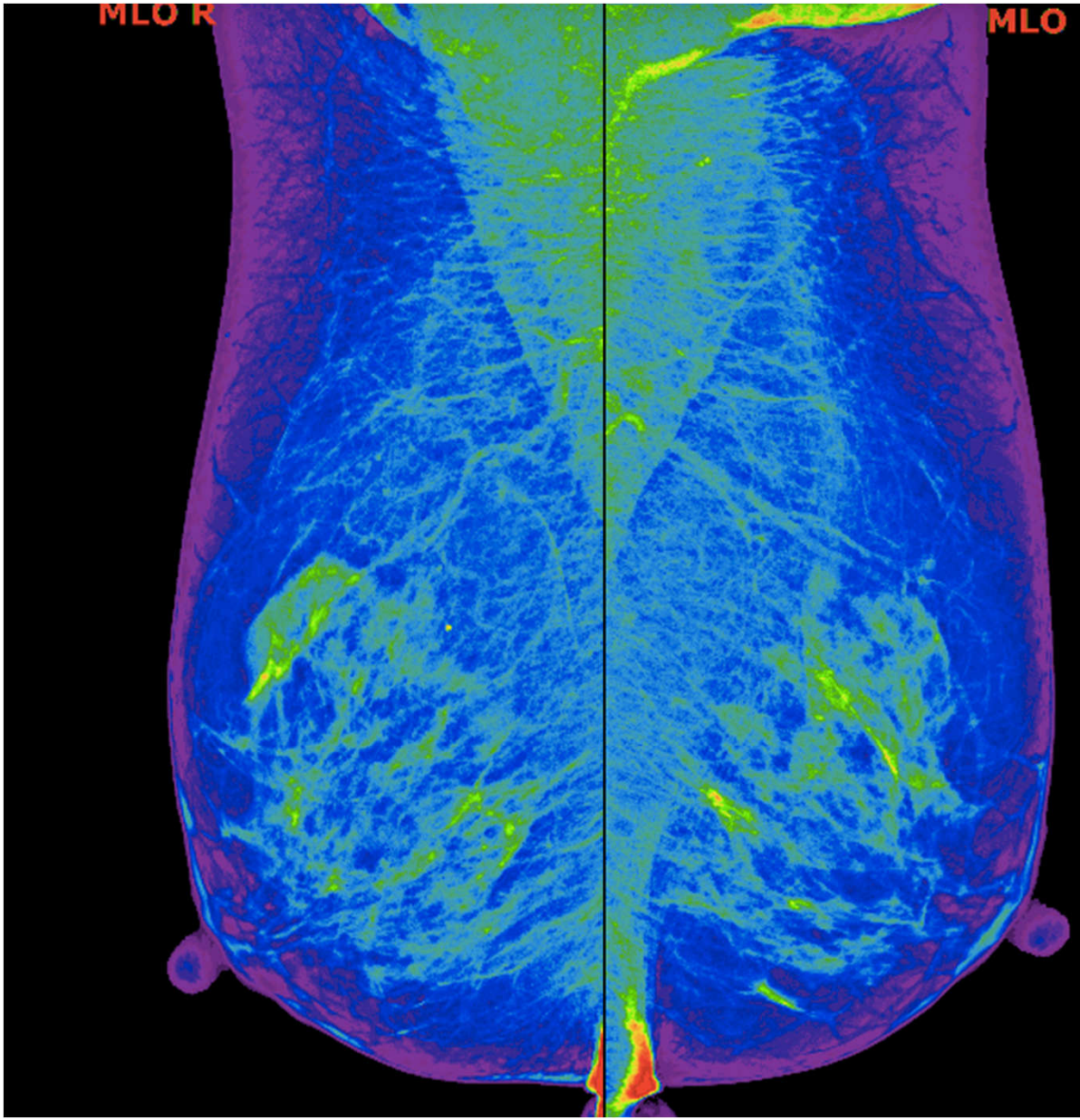
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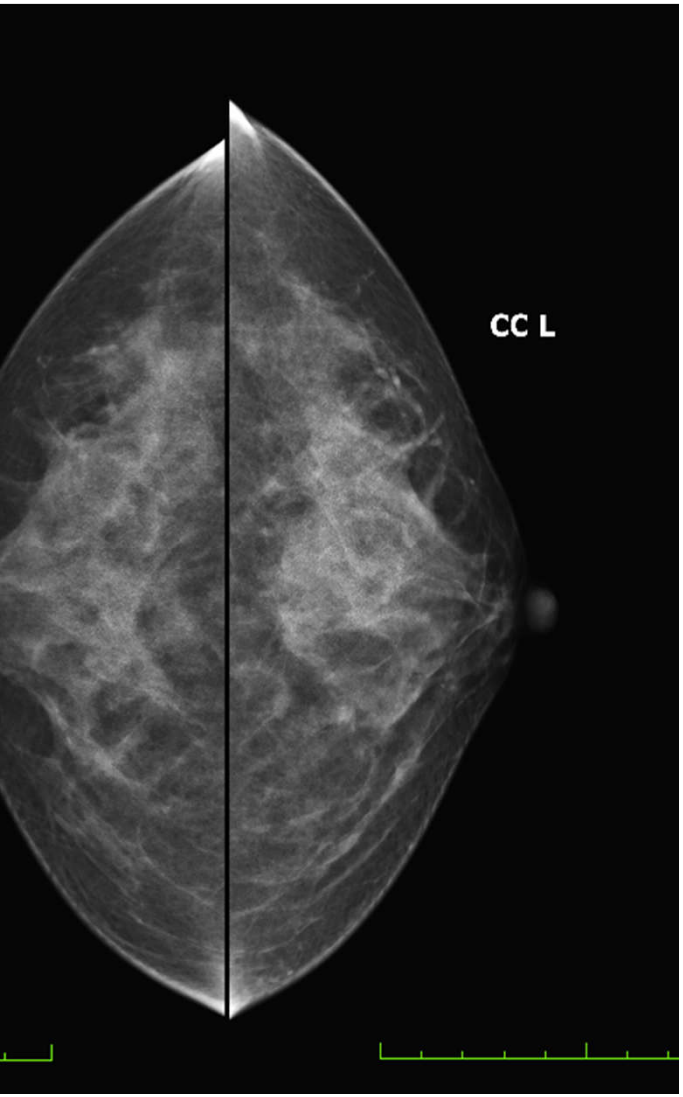
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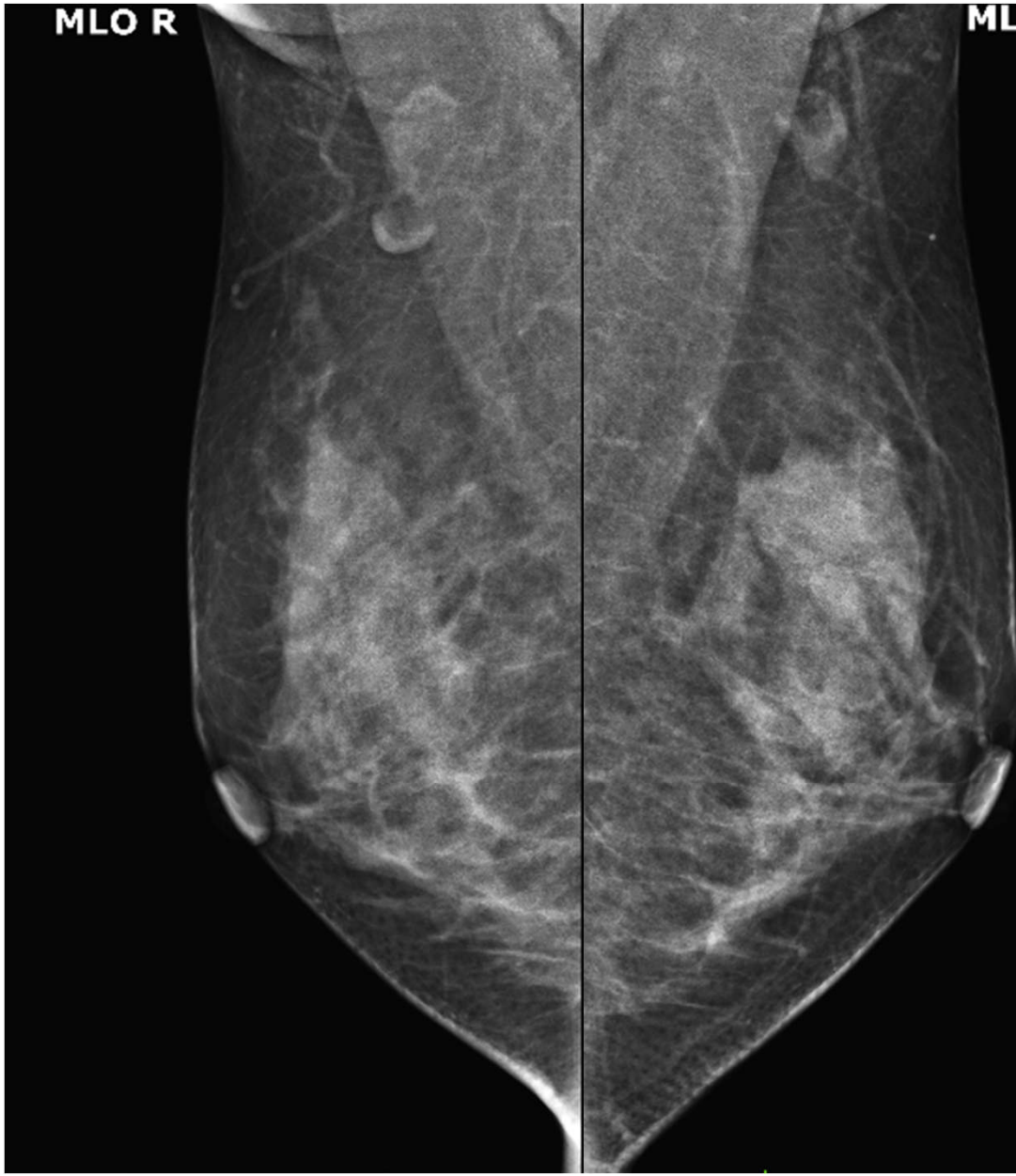
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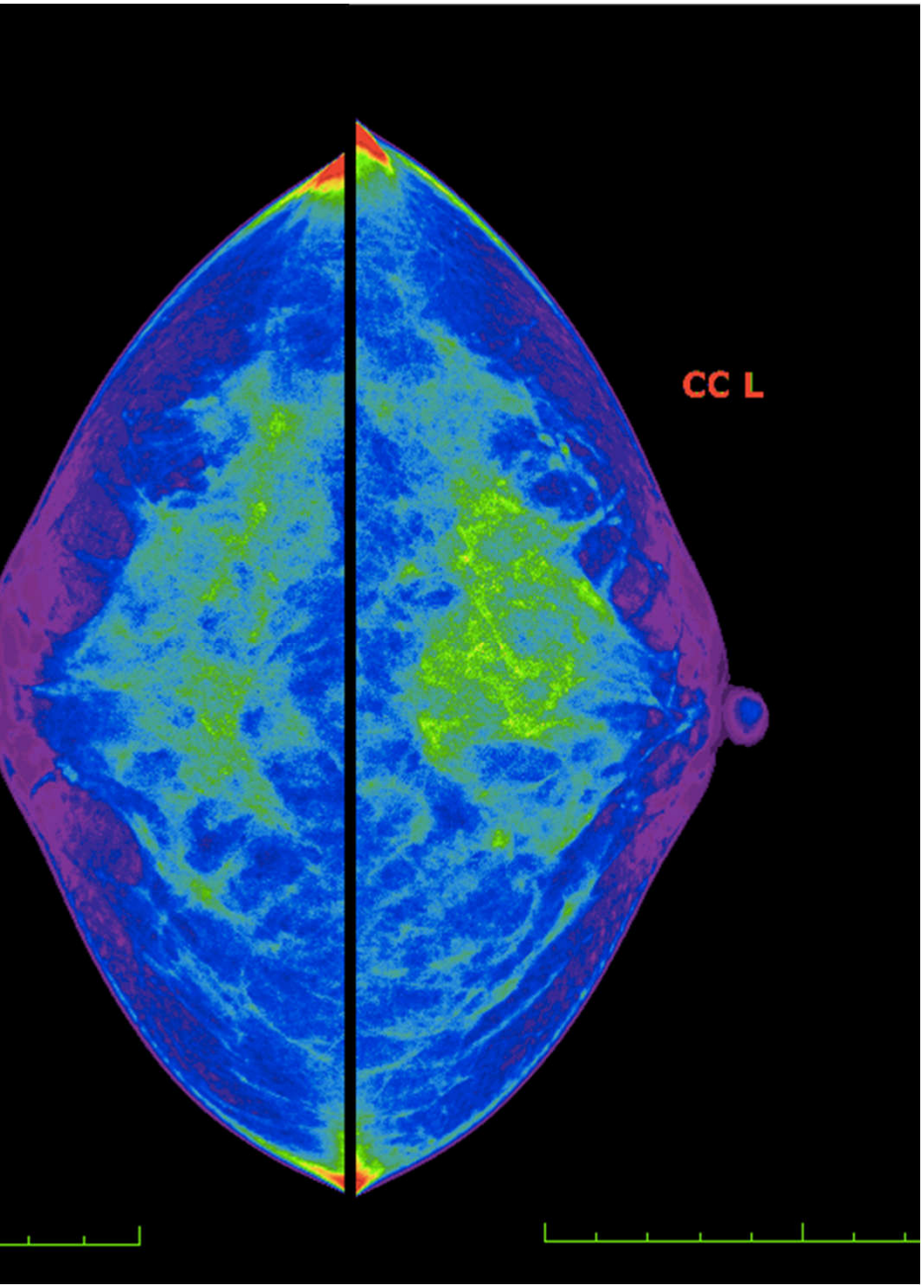
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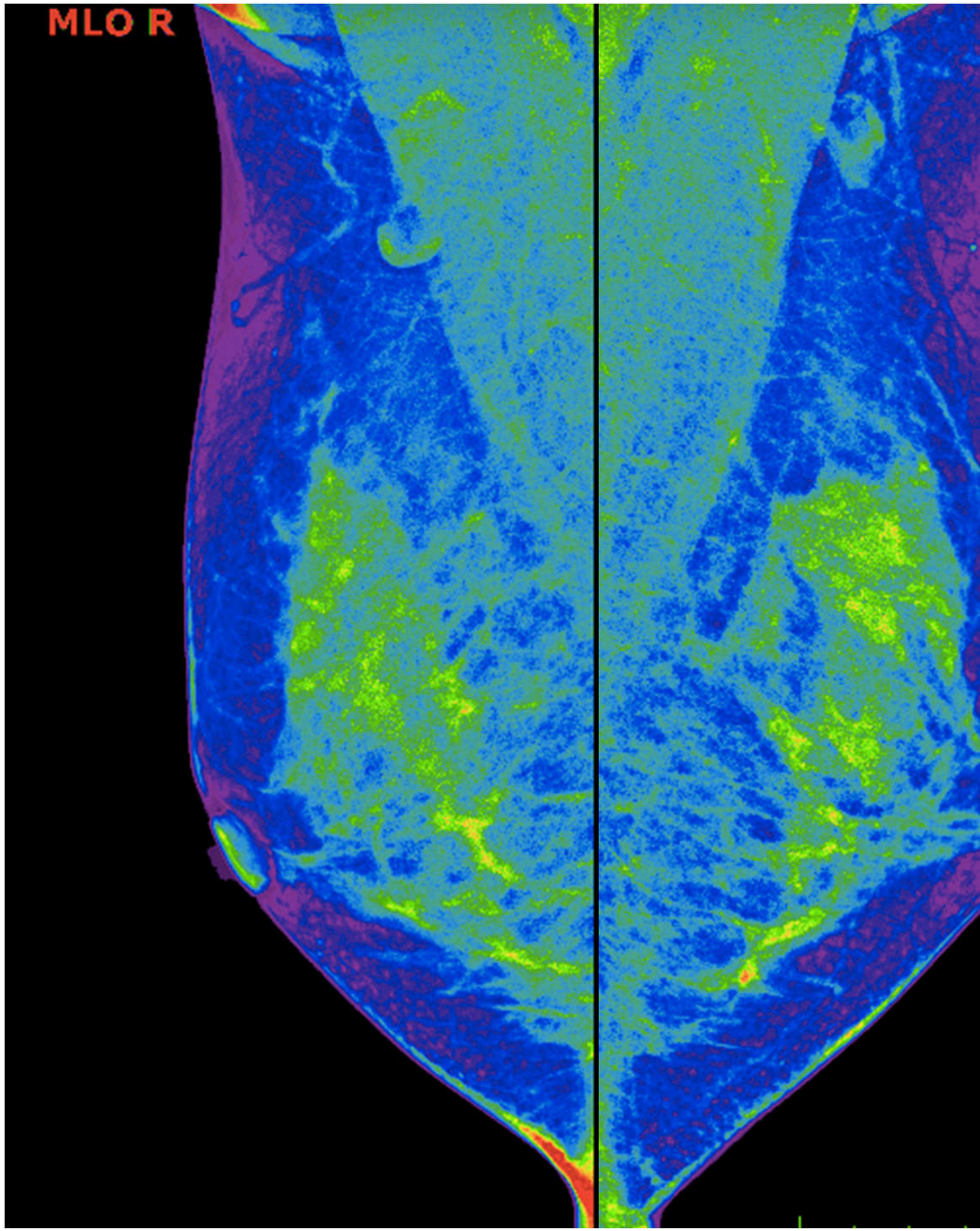
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Tổng kết X-quang sàng lọc Covid tháng 7

Tổng số ca	Covid (+)	Tổn thương phổi	Phổi bình thường
934	189	32	157

Tổng kết X-Quang bệnh viện dã chiến (15/7-16/8/2021)

Tổng số ca	Tổn thương phổi nghĩ do Covid	Phổi bình thường	Bất thường kh
3400	1240(36.5%)	1283(37.7%)	877(25.8%)