

TOČKOVNA ORIENTACIJA PRI RENTGENSKEM SLIKANJU PRSNIH ORGANOV V POSTERIO-ANTERIORNI PROJEKCIJI

ORIENTATION POINTS ON CHEST RADIOGRAMS IN POSTERIOR ANTERIOR PROJECTION

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IZVLEČEK

Uvod: Standardno slikanje prsnih organov je najbolj pogosta preiskava v diagnostični radiologiji. Pri slikanju prsnih organov sevalno obremenimo večje področje človeškega telesa, zato je pomembna natančnost pri nastavljanju v izogib ponavljanju slikanja.

Namen: Namen magistrske raziskave je bil izboljšanje postavitve in zaslanjanje rentgenskega snopa s pomočjo orientacijskih točk na telesu. S tem zmanjšamo obsevalno polje in hkrati zmanjšamo število neuspešnih rentgenogramov.

Metode: V raziskavi smo obravnavali 4 orientacijske točke in 6 tarčnih struktur. Na 2544 rentgenogramih prsnih organov v PA projekciji smo meritve neodvisno opravili trije radiološki inženirji. Beležili smo relativne položaje točk na rentgenogramih, ki smo jih kasneje pretvorili v relativne razdalje med njimi. Razdalje so bile popravljene za oddaljenost 5 cm od detektorja.

Rezultati: Relativni položaji točk in velika baza podatkov so nam omogočili širok nabor primerjave ter tudi pozicijo lege individualnih pljuč glede na skelet prsnega koša – to nam omogoča zaslanjanje in centriranje s pomočjo orientacijskih točk. V 95 odstotkih so se pljučni apeksi nahajali 1,2 cm pod trnom C7 in 3,1 cm nad AC sklepoma. Če želimo prikazati celotna pljuča z zadnjimi frenikokostalnimi sinusi, moramo centralni žarek nastaviti 3,5 cm kaudalno od trna Th7 oziroma za 1,1 cm kaudalno od trna Th7, če želimo prikazati pljuča do sprednjih frenikokostalnih sinusov. Širina pljuč skoraj vedno zahteva horizontalno lego slikovnega sprejemnika.

Razprava in zaključek: Večina literature omenja center slike pri Th7. Z raziskavo smo dokazali, da je optimalni center nižje. Prav tako smo boljše definirali optimalni rob slike oziroma velikost pljuč s pomočjo tipljivih orientacijskih točk.

Ključne besede: centriranje, prsni organi, orientacijske točke, Th7.

ABSTRACT

Introduction: Standard chest imaging is the most common examination in diagnostic radiology. When imaging the thoracic organs, a larger area of the human body is exposed to radiation, so accuracy in adjustment is important to avoid repeating the imaging.

Purpose: The purpose of this master's research was to improve the placement and screening of the X-ray beam with the help of orientation points on the body. This reduces the radiation field and at the same time reduces the number of failed radiographs.

Methods: In the research, we considered four orientation points and six target structures. Measurements were independently performed by three radiological engineers on 2,544 chest radiographs in the PA projection. We recorded the relative positions of the points on the radiographs, which we later converted into relative distances between those points. The distances were corrected by a distance of 5 cm from the detector.

Results: The relative positions of points and a large database provided us a wide range of comparisons, as well as the position of individual lungs relative to the skeleton of the chest. This, in turn, allowed us to screen and centre with the help of orientation points. In 95% of cases, the pulmonary apices were located 1.2 cm below the C7 mandrel and 3.1 cm above the AC joints. To show the entire lung with the posterior phrenicocostal sinuses, the central beam must be adjusted 3.5 cm caudally from the Th7 mandrel or 1.1 cm caudally from the Th7 mandrel to show the lungs to the anterior phrenicocostal sinuses. The width of the lungs almost always requires the image receiver to be in a horizontal position.

Discussion and Conclusion: Most of the literature mentions the image centre at Th7. Through research, we have proven that the optimal centre is lower. We also better defined the optimal edge of the image or the size of the lungs with the help of tactile orientation points.

Keywords: centering, thoracic organs, orientation points, Th7.

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