

(PS\HPD & DXVHG E\ 8 Q&DSQDROF \3NDRAASKRDJJHDQ

(PKHPPGL .DUHP +D]LP %R&NDRPIX \0JDULHG DQG 0DKPRXG 6KRUPDQ ,QWHUQDO 0HGLFLQH 'HSDUWPHQW -RDQ & (GZDUGV 6FKRRO RI 0HGLFLQH 0DUVKDOO 8QLYHUVLW\ +XQ&RUUHVSRQGLQJ DPLXPW KGRWNDPXU ,QWHUQDO 0HGLFLQH 'HSDUWPHQW -RDQ & (GZDUGV 6FKRRO RI 0HGLFLQH (PDL&NDPXU#PDUVKDOO HGX

5HFHLYHG -GDWH \$FFHSWHG\$&DXWHW 3XEOLVKHG GDWH 6HSWHPEHU &RS\ULJKW .DUHP (HW DO 7KLV LV DQ RSHQ DFFHVV DUWLFOH GLVWULEXWHG XQGHU WKH WHUPV RI VHVWGLVWULEXWLRQ DQG UHSURGXFWLRQ LQ DQ\ PHGLXP SURYLGHG WKH RULJLQDO DXWKRU DQG VRXU

\$EVWUDFW

(PS\HPD LV D FROOHFWLRQ RI SXV LQ WKH SOHHSXQRDFOWRSSKFDULH\ SLW\ M\ P\ W\ F\ D\ K\ R\ H\ G\ E\ UDUH DQG DIWHU H[WHQVLYH UHYLHZ RI WKH O\ L\ W\ &H\ D\ S\ D\ Q\ R\ X\ F\ U\ M\ R\ H\ P\ K\ S\ D\ U\ H\ D\ G\ ,Q\ Q\ O\ I\ RXU\ RXU FDVH UHSRUW ZH SUHVHQW D &D\ S\ Q\ R\ F\ I\ W\ R\ H\ P\ K\ S\ D\ U\ H\ D\ G\ Q\ D\ V\ I\ D\ V\ O\ I\ D\ O\ L\ W\ K\ S\ U\ H\ V\ H\ Q\ W\ H\ G\ Z\ L\ V\ DQG V\ PSWRPV RI DFXWH FRQJHVVLYH KHDUW IDLOXUH &+) ZLWK QR KLVWRU\ FIOXLG &XOW&XUH&Q\ R\ F\ U\ M\ Z\ Q\ R\ D\ B\ D\ K\ H\ U\ R\ U\ J\ D\ Q\ L\ V\ P\ V\ Z\ H\ U\ H\ L\ G\ H\ Q\ W\ L\ I\ L\ H\ G\ DQG EORRG FXOWDW LQFUHDVHG UL\ & N\ S\ Q\ R\ G\ H\ V\ R\ L\ S\ Q\ R\ B\ D\ D\ V\ L\ R\ Q\ V\ L\ Q\ F\ O\ X\ G\ H\ S\ R\ V\ V\ V\ S\ O\ H\ Q\ H\ F\ W\ R\ P\ SDWLHQW DJH RYHU DQG DOFRKRO DEXVH 7KH ULVN IDFWRUV IRU RXU FDVH ZHUh DJH KLVWRU\ RI DOFRKRO DEXVH 7KH SDWLHQW ZDV WUHDWHG ZLWK FKHVW WXEH GUDUHVROXWLRQ RI KLV HPS\HPD

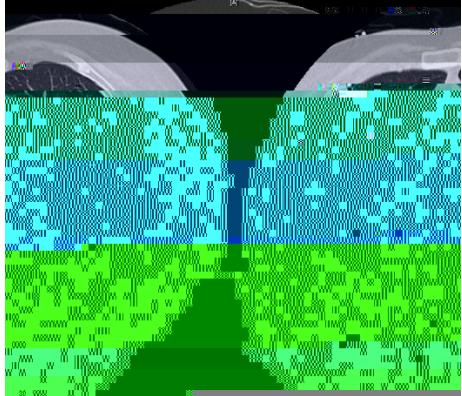
.H\ZRUGV (PS\HPD &DSQRF\WRSKDJD =RRQRWLF

,QWURGXFWLRQ

(PS\HPD LV D FROOHFWLRQ RI SXV LQ WKH SOHXUDO VSDFH ,W LV W\SLFDOO\ D VHULRXV FRPSOLF DWLRQ RI SQHXRQLD ZLWK KLJK PRUELGLW\ DQG PRUWDOLW\ UDWHVPRVW FRPPRQ RUJDQLVPV FDXVLQJ HPS\HPD DUH JUDP SRVLWLYH RUJDQ\ D\ S\ P\ K\ I\ O\ R\ X\ B\ Q\ F\ D\ W\ S\ W\ R\ F\ R\ F\ F\ X\ V\ DQJH JPHQW RI HPS\HPD LQFOXGHV GUDLQDJH E\ FKHVW WXEH RU VXUJHU\ DQG XVH RI DSSURSU&D\ S\ R\ H\ F\ I\ D\ Q\ R\ S\ B\ D\ H\ /D\ W\ L\ F\ W\ > @ H[WHUHPHO\ UDUH > @ DQG WR RXU NQRZOHGJH WKUH LV RQO\ IHZ FDVHV WKDW KDYH EHHQ&D\ S\ R\ U\ M\ R\ H\ E\ K\ D\ U\ B\ X\ S\ RI\ ORQJ\ WKLQ\ IXVLIRUP VORZO\ JURZLQJ IDFXOWDWLYH DQDHURELF *UDP QHJDWLYH URGV ZLWK JOLGLQ\ PRWLOLW\ ZKRVH JURZWKHQ\ L\ K\ M\ G\ P\ D\ V\ P\ R\ Q\ S\ B\ H\ &J\ H\ KHQFH WKH QDPH &DSQRF\WRSKDJD FRQVXP\ SWLRQ RI &2 &D\ S\ R\ F\ I\ W\ R\ V\ S\ S\ K\ F\ D\ L\ H\ V\ DUH SDUW -RRIU\ M\ K\ I\ G\ R\ Q\ R\ U\ P\ F\ D\ D\ W\ R\ U\ D\ O\ DQG KXP\ D\ Q\ V\ DQG ZHUh RQFH DVVRFLDWHG ZLWK SHULRGRQWDO GLVHDVH EXW D QRZ FRQVLGHUHG FRPPHQVDOV LQ GHQWDO SODTXH RI KXP\ D\ Q\ V\ &D\ S\ R\ F\ I\ W\ R\ V\ S\ S\ K\ F\ D\ L\ H\ V\ DQG KDYH YDULHG FOLQLFDO SUHVHQWDWLRQV VXFK DV SHULRGRQWDO GLVHDVH UHVS\ LUDW\ RU\ WUDFW LQIHF\ WLRQV RSKWKDOPLF OH WUDXP\ D\ W\ L\ F\ SHULFDUGLW\ PHGLD\ V\ W\ L\ Q\ D\ O\ D\ E\ V\ F\ H\ V\ V\ E\ U\ D\ L\ Q\ D\ E\ V\ F\ H\ V\ V\ P\ H\ Q\ L\ Q\ J\ L\ DQG SHULWRQLW\ > @

&D\ V\ H\

\$ \H\DUV ROG Z\ K\ L\ W\ Q\ H\ L\ F\ D\ O\ K\ L\ V\ W\ R\ U\ \ RI &RQJHVVLYH KHDUW IDLOXUH 'LDEHW\ 1RQ +RGJNLQdV /PSKRPD LQ UHPLVVL\ RQ DQG &KURQLF .LGQH\ GLVHDVH VWDJH +H SUHVHQWHG WR RXU IDFLOLW\ ZLWK ZRUHVQLQJ VKRUWQHVV RI EUHDWK RUWKRSQHD DQG ORZHU H[WHUPLW\ VZHOOLQJ ZLWK ZHHS\ LQJ VWDV\ GHUPDWLW\ %\ UHYLHZLQJ KLV VRFLDO KLVWRU\ +H GLG QRW UHSRUW DQLPDO ELWH RU VFUDWFK EXW UHJXOD FDUHG IRU IRXU GRJV DW KLVHV H\ AVO WLUp4\ JHG WRPRGL~W KLVH_H@` H2LQ SW H\ p LPDJLRQ \$0KL \$0YLWDO \$0VLWL \$0ZHU \$0RX% \ 0UHDUD€\ \$0IRU\$0W€0 WH VP Q\



)LJXU&7 VF DQ RI WKH FKH V W VHKRZVLLQRJQELODWHUDO SOH XUDO
PRUH RQ WKH ULJKW VLGH

UHVXOWV)LQDOO\ ZLWK GHDOLQJ ZLWK ROGHU SDWLHQWdV SRSXODWLRQ DQG