

&DVH 5HSRUW

\$ 6&,7(&+12/ -28)

'LDJQRVWLF &RQXQG
&HUHEHOODU &U\SWLF
ODOIRUPDWLRQV

QFQDXGQV 05, 05, DQJLRJUDSK\FDQVLF\$
\$90 DUH GHWHFWDEOH GXH WR PRGHUQ DO
WHFKQL\XHV DQG WKH GHYLOLWLRQ E
\$GYDQFHV LQ UDGLRORJLFDQ WSKHQR
EH GHWHFWDEOH DQG WKHUHIRUH WKH G

9LFWRU .ZDVL\RN 1LZDND\XNL DQG D50 'DPLDQ
+ROVLQJHU

7KHUH LV QR XQLRUPLW\$90Q DQVLEL

'HSDUWPHQW RI 1HXURVXUJHU\ 7RUDQRPRQ +RVSORFHWHFWDEOH RQ URXWLQH '6\$ LV FRQV

QFQDXGQV 05, 05, DQJLRJUDSK\FDQVLF\$

'HSDUWPHQW RI -DSDQHVH &RXQFLO IRU OHGLFDO HUHQWLVW YKH QRFHVLV DQ GHWHFWLRQ
7RN\ -DSDQ \$90 RQ &%&7 \$ DQG '5\$ WKDW SHUPLWWH

HUHQWLVW YKH QRFHVLV DQ GHWHFWLRQ

'HSDUWPHQW RI 6XUJHU\ 7KH 8QLYHUVLW\ RI 6\GQH\ WKH DFWLWV WHFKQL\XHV SKDVH

WHFKQL\XHV DQG WKH GHYLOLWLRQ E

'HSDUWPHQW RI 3DWKRORJ\ 7KH 8QLYHUVLW\ RI 6\GQH\ 16: \$XVWUDOLD

WHFKQL\XHV DQG WKH GHYLOLWLRQ E

&RUHVSRQGLQJ D\XWURU .ZDVL 'HSDUWPHQW RI 6XUJHU\ 7KH 8QLYHUVLW\ RI 6\GQH\ /HYHO

WHFKQL\XHV DQG WKH GHYLOLWLRQ E

RI 6\GQH\ /HYHO OHGLFDO)RXQGDWLRQ %XLOGLQJ 3DUUPDWWD 5RDG

WHFKQL\XHV DQG WKH GHYLOLWLRQ E

&DPSHUGRZQ 16: \$XVWUDOLD #ZDVL#V\GQH\ HGX D\ HDUPDQGSUHVHGHG ZLWK JUDGX

WHFKQL\XHV DQG WKH GHYLOLWLRQ E

5HFHLYHG \$SDWQ \$FFHSWHG \$SDWQ 3XEOLVKHG GDWH

WHFKQL\XHV DQG WKH GHYLOLWLRQ E

\$SULO

WHFKQL\XHV DQG WKH GHYLOLWLRQ E

\$EVWUDFW

&U\SWLF \$UWHULRYHQRXV ODOIRUPDWLRQV
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FUDQLDO IRVVD SRVHV LQFUHDVHG ULNV
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WKUHH 'LPHQVLRQDO 5RWDWLRQDO \$QJLRJUDSK\
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SHUIRUPHG ZLWKRXW FRPSOLFDFWLRQV
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&HUHEHOODU VLJQDHLQFLXGHG PLVGHWU

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\HDUV SULRU

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ULNV RI UH EOHGGLQJ EXW VRPHWLWV

FRQYHQWLRQDO QHXURLPDJLQJ PRGDOLWLHV

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LQFUHDVLRQ LQWUDFUDQLDO SUHVXUH

VXUJLFDQ UHVROXWLRQ LV RI XWPRVW

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WKUHH 'LPHQVLRQDO 5RWDWLRQDO \$QJLRJUDSK\

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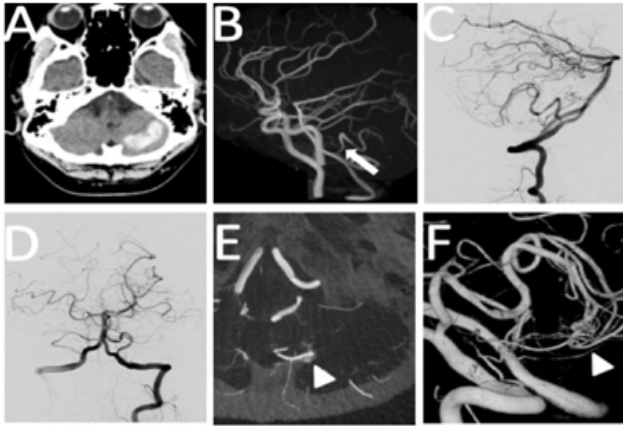
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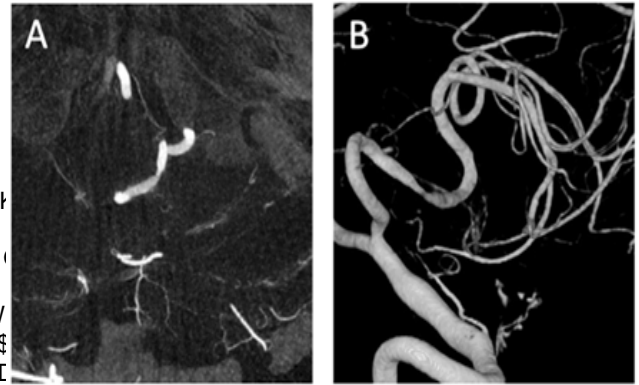
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LPSRUWDQW WR SUHYHQW UHFUWHQW KDHPRUUKDJH
LQFUHDVLRQ LQWUDFUDQLDO SUHVXUH)RQDO
5RWDWLRQDO \$QJLRJUDSK\ DQJLRJUDSK\ 7KHUH
5RWDWLRQDO \$QJLRJUDSK\ DQJLRJUDSK\ 7KHUH
KDHPDWRPD RU DQJLRJUDSK\ GHPRQVWUDWHV D
HDUO\ GUDLQLQJ YHLQV > @

+RZHYHU W\SLFDO IHDXUHV DUH QRW PLOZ
SRVLELOLW\ RI \$90 LQ DFXWH LQWUDFUDQLDO
K\SHUWHQVLYH KDHPRUUKDJH EDVHG RQ UDGLRORJLFDQ
VCRZLQJ QR DEQRUPDOLWLHV LQ YHVHVH \$EQRUPDO
LQYLVEOH GXH WR FRPSUHVVLRQ E\ WKH DFXWH
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&U\SWLF \$90 ZHUH WUDGLWLRQDOO\ GHILQHG
FHQWLPHWUHV FOLQLFDQO\ DV\PSWRPDWLF DQG
\$90 7KH\ ZHUH LQYLVEOH RQ FRQYHQWLRQDO



FRQQHFWHG WR WKH KDHPDWRPD FDYLW\ EOHHLGQJ ZDV WKH \$90 DV RSSRVHG WR 3 H[SORUDWLRQ RI 3,&\$ ZDV FRQVLGHUHG LG 7KH SDWLHQW UHYHUVHG XQHYHQWIXOO\ QHXURORJLFDO GHILFLWV H[FHSW IRU W SUHVHQWHG ZLWK SUH RSHUDWLYHO\ 3RV WKDW WKHUH ZHUH QR UHVLGXDO \$90 DQG GLVVHFWLRQ)LJXUHV \$ DQG %



(LJXUH and B) \$%&7\$ DILDO VHEWL GRQH RQ SRVW RS GDI ZLWK LQMHFWRV YHUWHEUDO DUWHU\ 7KHUH ZHUH QR UHV

)LJXUH \$ &7 VFDQ RQ DGPLVVLRQ V KDHPRUUDJH RQ WKH OHIW FHUHEHOOD GHPRQVWUDWLQJ IRFDO GLODWLRQ DQ OHIW 3,&\$ DUURZ & DQG ' /DWHUDO YLHZV RI WKH OHIW YHUWHEUDO DUW ILQGLQJV (+LJK UHVROXWLRQ &%&7\$ DUWHU\ LQMHFWRQ GHPRQVWUDWLQJ L '5\$ ZLWK OHIW YHUWHEUDO DUWHU\ LQMHFWRQ VKRZLQJ YDVFODU

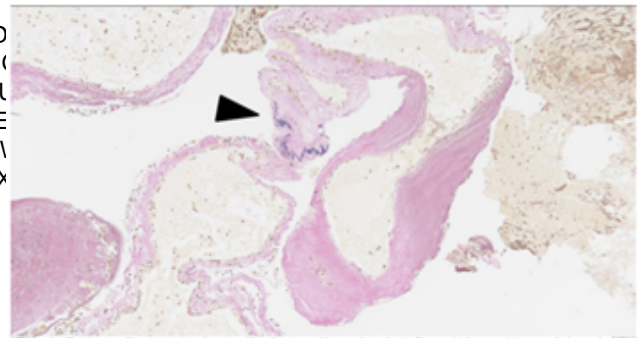
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'LIIHUHQWLDO GLDJQRVHV IRU SRVW FULXUWLDQ LQFOXGH K\SHUHQVLYH KDHPRUUKDJH WXPXUV FDYHUQRXV PDOIRUPDWLRQ ILVWXODH LOOLFLW GUXJV VXFK DV HFVWDV\ DQG DQXU\VPDO EOHHLGQJ

FULXUWLDQ LQFOXGH KDHPRUUKDJH L VWRORJLFDO FIDRLODVWVHQ\XWHQRVQD PRDLODQDPSKHQDPLQHV KHURUG BQK KIDOLQLJHG DQG WKLFNHQHG ZDOOV EXW LQWR YHLQV ZHUH QRW LGHQWLILHG 2QH HODVWLF ILEHUV ZKLFK D FKDUDFWHULVW

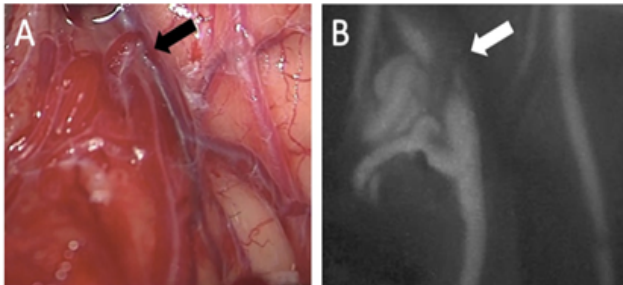
6XUJHU\

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)LJXUH HODVWLF YDQ *LHVRQ VDWLQLQJ G HODVWLF ILEHUV ZKLFK DUH VDWLQLQJ SX ZHUH DOVR VLJQLILFDQWO\ WKLFNHQHG

)ROORZLQJ FRQLQXRXV OXPEDU GUDL VXEFXWDQHRXV VZHOOLQJ WKDW ZDV GXI IURP SRVW RSHUDWLYH GDI\ WKH SDWL



)LJXUH (A and B) ,QWUD RSHUDWLYH YLGHR LPDJH \$ DQG YLGHR DQJLRJUDSKI\ RQ WKH DUWHULDO SKDVH RI LQWUDYHQRXV LQGRF\DQLQH JUHHQ LQMHFWRQ % VKRZLQJ D QLGXV 1RW YHLQV LQFOXGLQJ WKH 3UH YHLQ' ZHUH QRW VDWLQHG LQ WKH DUWHULDO SKDVH 7KH QLGXV ZDV VDIHO\ UHPRYHG DQG DUHURVUWV WJHODH KLJKLRQ GHFRQVWVSLFL ZLWK UHSHDW LQGRF\DQLQH JUHHQ LQWUDYHQRXV FDXV \$90 VFDVSRUWZDQW &%&7

XVHIXO LPDJLQJ PRGDOLWLHV IRU GHOSLPHVHQFFUJWSWLF \$90 '6\$ LV WKH
JROG VWDQGDUG IRU GLDJQRVLQJ FUI\SWLF \$90 &%&7\$ KDV KLJK
VHQVLWLYLW\ LQ IRU UXSXUHG \$90 05, DQJLUDSK\ LV GRUORLQVLYHDDG
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7KH DQQXDO UH EOHGGLQJ ULVN LV DSSURILPDWHO\ DQJLUDSK\ ZLWK DFXV
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FRPSDUHG WR VXSUDWHQWRULDO \$90 2QFH DFXWH KDHPRUUKDJH RFFXUV
PRUWDOLW\ UDWL LV DV KLJK DV > @ LQDSSURVXODWHUWVW FUI\SWLF \$90 PDO
DUH XQGHUHVWLPDWHG DQG LQFUHDVLRQ XQGHUHVWLPDWHG DQJLUDSK\ DQJLUDSK\
LGHQWLILHG DQG WUHDWHG DSSURSULDWHO\ DQJLUDSK\ DQJLUDSK\ DQJLUDSK\
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FUDQLDO IRVVD KDHPRUUKDJH HVSHFLDOHQW DQJLUDSK\ DQJLUDSK\ DQJLUDSK\
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:H ZRXOG OLNH WR WKDQN 'U 6KLQML ,WR&RUHWHOP&7HLLQVRYHDSK\ 'IQD
KLWRSDWKRORJ\ GLDJQRVLV ORFDOL]DWLRQ RI FHUHEUDO DUWHU
1HXURLQWHUY 6XUJ
*UDI &- 3HUUHW *(7RUQHU -& %
DUWHULRYHQRXV PDOIRUPDWLRQV DV :
1HXURVXUJ
YDQ GHU %RP ,0- *RXQLV 0- 'LQJ / .K
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PDOIRUPDWLRQ XVLQJ KLJK UHVROXWLRQ
EHDP &7 - 1HXURLQWHUY 6XUJ H